[illegible], Yu. I.

"[illegible] Method for Measuring the Modulus of Elasticity and Decrement of Damping," [illegible] read at the [illegible] Conference of the Acoustics Commission, AS USSR held in Leningrad 1-3 Feb 61.

M-21610, 26 Feb 62

SUKHAREVSKIY, YU.M.

USSR/Engineering - Materials, Ultrasonics Jun 52

"Electromechanical Q-Meter - Equipment for Measuring the Elasticity Modulus and Losses of Materials U nder Ultrasonics," N.S. Ageyeva, I. P. Zhukov, M. A. Isakovich, A. L. Sosedova, Yu. M. Sukharevskiy

"Zhur Tekh Fiz" Vol XXII, No 6, pp 1029-1042

Describes in detail equipment for said measurements under ultrasonics within the range of tens of kilocycles. Explains the theory of the equipment and gives computational formulas and graphs for detg Young's modulus of solids and modulus of shear of rubber-like materials and decrement of extinction, according to elec measurements. Also indicates the effect of temp and pressure on results. Received 30 june 1951.

219T40

KURYAYEV, Timofey Antonovich; CHERNENOK, Mikhail Yakovlevich; YAVORSKIY, I.P., retsenzent; SUKHARIN, V.I., retsenzent; ALEKSEYEV, V.I., red.izd-va; YERMAKOVA, T.T., tekhn.red.

[Manual for amateur motorboat drivers] Posobie sudovoditeliu-liubiteliu. Moskva, Izd-vo "Rechnoi transport," 1959. 97 p. (MIRA 12:9)

(Motorboats)

SHANCHUROV, Pavel Nikolayevich, dotsent, kand.tekhn.nauk; BUKHANOVSKIY, I.L., starshiy nauchnyy sotrudnik, kapitan dal'nego plavaniya, retsenzent; RODIONOV, V.N., retsenzent; SUKHARIN, V.I., retsenzent; SUTYRIN, M.A., retsenzent; MIRONOV, V.P., starshiy nauchnyy sotrudnik, red.; LOBANOV, Ye.M., red.izdatel'stva; YERMAKOVA, T.T., tekhn.red.

[Ship handling on inland waterways] Sudovozhdenie na vnutrennikh vodnykh putiakh. Moskva, Izd-vo "Rechnoi transport," 1959. 343 p. (MIRA 13:2)

1. TSentral'nyy nauchno-issledovatel'skiy institut ekonomiki i ekspluatatsii vodnogo transporta (for Bukhanovskiy, Mironov). 2. Nachal'nik sudokhodnoy inspektsii Volzhskogo basseyna (for Sukharin). 3. Zamestitel' glavnogo revizora bezopasnosti dvizheniya Ministerstva rechnogo flota (for Sutyrin).

(Ship handling) (Inland navigation)

SUKHARINA, A.N.; PETROPOL'SKAYA, A.A.

New region with high-alumina fire clays in Western Siberia. Sov. geol. 3 no.10:146-149 O'60. (MIRA 13:10)

1. Zapadno-Sibirskoye geologicheskoye upravleniye.
(Siberia, Western--Fire clay)

SUKHARINA, A.N.; SAZHIN, A.I.; SPANDERASHVILI, G.I.

Phosphorite-bearing area in Gronaya Shoriya. Razved. i okh. nedr 27 no.2:10-17 F '61. (MIRA 14:5)

1. Zapadno-Sibirskoye geolupravleniye.
(Gornaya Shoriya--Phosphorites)

SUKHARINA, N. N.

"Study of Stresses of the First Type in Rolling Friction" p. 127-131, in the book Research in the Physics of Solids, Moscow, Izd-vo AN SSSR, 1957. 277 p. Ed. Bol'shanina, M. A., Tomsk Universitet, Siberskiy fiziko-tekhnicheskiy institut.

Personalities: Davidenkov, N. N.; Shevandin, Ye. M., and Savitskiy, K. V. Materials tested: technical copper and low-carbon steel. There are 5 figures and 7 references, all Soviet.

This collection of articles is meant for metallurgical physicists and for engineers of the metal-working industry. This book contains results of research in the field of failure and plastic deformation of materials, mainly of metals. Problems of cutting, abrasion, friction, and wear of solid materials (metals) are discussed.

SOV/124-59-8-9445

Translation from: Referativnyy zhurnal, Mekhanika, 1959, Nr 8, p 152 (USSR)

AUTHOR: Sukharina, N.N.

TITLE: Investigation of the Stresses of First Kind for the Rolling Friction

PERIODICAL: V sb.: Issled. po fiz. tverdogo tela. Moscow, AS USSR, 1957, pp 127 - 131

ABSTRACT: The propagation range and the sign of residual stresses of the first kind in commercial copper and low-carbon steel were investigated, which were caused by the rolling friction at velocities of 0.8 and 2.5 m/sec. The magnitude and sign of residual stresses were calculated from the magnitude of deflection of prismatic samples determined by the consecutive etching of the cold hardened layer. Within the surface layer arose residual compressive stresses down to a depth of 0.1 mm in steel and 0.41 mm in copper. With an in-

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SOV/137-58-8-17782

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 227 (USSR)

AUTHOR: Sukharina, N. N.

TITLE: The Effect of Friction Conditions on the Physical-mechanical State of Surface Layers of Carbon Steel (Vliyaniye rezhimov treniya na fiziko-mekhanicheskoye sostoyaniye poverkhnostnykh sloyev uglerodistykh staley)

PERIODICAL: Izv. vyssh. uchebn. zavedeniy. Fizika, 1957, Nr 1, pp 157-161

ABSTRACT: Studies were carried out in order to evaluate the effect of the frictional conditions upon the microstructure, microhardness, and the condition of the surface layer, as well as on temperature changes occurring in it. The investigation was performed on carbon steels containing 0.04% and 0.68% C. A qualitative relationship was established between the increase in microhardness and temperature and the propagation of deformation underneath the frictional surface. During lubricated friction at small velocities, the microhardness increases by 25 - 85% as compared to the initial microhardness, whereas at large velocities, it increases by a factor of 4 - 7. The physical

Card 1/2

SOV/123-59-16-63902

Translation from: Referativnyy zhurnal. Mashinostroyeniye, 1959, Nr 16, p 38 (USSR)

AUTHOR: Sukharina, N.N.

TITLE: Temperature Measuring of the Surface in Contact, Using a Loop Oscillograph

PERIODICAL: Dokl. 7-y Nauchn. konferentsii, posvyashch. 40-letiyu Velikoy Oktyabr'skoy sots. revolyutsii. Vyp. 2, Tomsk. Tomskiy un-t, 1957, pp 44-45

ABSTRACT: It is reported that the application of a loop oscillograph with semi-artificial thermocouples gave the possibility to effect, with a sufficient degree of accuracy, the simultaneous measurement of temperatures in several parts of the sample, and also to record the fluctuation of temperature for a time of the order of a few milliseconds. Based on the results of these investigations it was established that, depending on the speed and load, the temperature fluctuates in the range of 100 - 600°C.

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33715

S/686/61/000/000/008/012
D207/D303

11730 1454

AUTHOR: Sukharina, N. N.

TITLE: Effect of preliminary hardening by friction on the wear resistance of steels

SOURCE: Soveshchaniye po voprosam teorii sukhogo treniya i obrazovaniya chstits iznosa pri sukhom trenii. Riga, 1959, 121-128

TEXT: The author reports that steel and iron can be hardened by lubricated friction and that this hardening increases the resistance to wear. Tests were carried out on commercial iron, and on steels 45 and Y8 (U8) made into samples shaped like brake casings. The samples were subjected to lubricated friction with discs made of ШХ15 (ShKh15) steel, loaded with 50 and 80 kg/cm^2, and rotating at the rate of 4, 6, 13 and 16.3 m/sec. Such friction treatment increased the Vickers surface hardness to values like 830 - 1050 kg/mm^2. Friction hardening improved also the wear resistance by a factor of 30 - 35 compared with annealed samples; wear was found

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Effect of preliminary ...

by measuring mass loss on dry friction at 0.5 - 0.7 m/sec under loads of 50 - 100 kg/cm^2. The greatest increase in the wear resistance was obtained by friction hardening at high velocities (13 or 16.3 m/sec) and high pressures (80 kg/cm^2). Under these conditions the wear resistance of the friction-hardened iron and steels was as good as that of quench-hardened steels. The advantage of lubricated friction-hardening over quench-hardening was the former's applicability to low-carbon steels which cannot be hardened by quenching. Increase of the surface hardness by lubricated friction was due to formation of "white" surface layers: 60 - 100 μ thick in steels and 100 - 150 μ thick in iron. Lubricated friction-hardening is recommended for improving the wear resistance of machine parts in the form of solids of revolution (this is covered by Author's Certificate No. 111741). There are 5 figures and 12 Soviet-bloc references.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut (Siberian Physico-Technical Institute)

Card 2/2

Effect of the degree ...

sions. The resistance to wear was found by dry sliding friction (1 m/sec and 30 kg load for steels, 1,1 m/sec and 20 kg/cm^2 pressure for duralumin) and by lubricated friction. Duralumin was also rubbed with emery cloth using the method of M. M. Krushchov and M. A. Babichev (Ref. 7: Sbornik: Treniye i iznos v mashinakh (Collection: Friction Wear in Machines), vol. IX, Izd. AN SSSR, 1954). The degree of dispersion was represented by the mean distance between occlusions (λ). Since the total amount of Fe_3C or $CuAl_2$ was the same in a given material, a small λ signified high degree of dispersion, i.e. a large number of small occlusions. A large value of λ represented a small number of large occlusions. The initial microhardness of the two steels and of duralumin was greatest in high-dispersion samples and smallest in those with low dispersion. The frictional wear of steels increased, in general, with decrease of microhardness, except in the softest samples where wear was unexpectedly relatively low. This was due to hardening of the softest steel samples (with the largest λ) by friction during tests; this hardening improved their wear resistance. The degree of

Card 2/3

As the sample does not come into contact with the coolant, it is possible to use liquid air enriched with oxygen (as produced in devices of the type SK-05). It is possible to produce a stable temperature of down to -100°, and after a slight alteration of the device also down to -180°. There are 1 figure and 4 Soviet references.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy nauchno-issledovatel'skiy institut (Siberian Physico-technical Scientific Research Institute)

26050
S/137/61/000/007/066/072
A060/A101

18.8200

AUTHOR: Sukharina, N. N.

TITLE: Investigation of the magnitude and sign of residual stresses under differing conditions of friction

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 7, 1961, 35, abstract 7Zh255 ("Tr. 3-y Vses. konferentsii po treniyu i iznosu v mashinakh. T.I." Moscow, AN SSSR, 1960, 80-84)

TEXT: The influence of friction conditions upon the distribution of residual stresses in various metals, i.e. steel with carbon content 0.037 and 0.57 pc and technically pure Cu, was studied. Flat specimens with dimensions 120 x 10 x 15 mm were affixed on the table of the carriage having a reciprocating motion. By means of a loaded lever, a hardened ШХ-15 (ShKh-15) steel slide bar having a round-off radius of 5.3 mm or steel roller of the same radius was pressed against it. The displacement velocity of the carriage with the specimen constituted 0.08 - 2.5 cm/sec. Copper specimens were tested at loadings of 3.5 and 14 kg, and steel - at 14 and 56 kg. The friction proceeded under lubrication with machine oil. All the specimens were annealed in cast iron shavings

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Investigation of the magnitude ...

for 1 hour at 650°C before friction. The residual stresses arising under friction were determined by calculation from bending the samples with a sequential electrolytic scouring of the metal layers on the working side. In a thin layer of metal near the friction surface are concentrated the greatest residual stresses, the magnitude of which decreases towards the depth of the specimen. Despite the difference in the residual stress curves corresponding to different friction conditions, compressive stress is always observed in the outside layer contiguous to the friction surface. Both for copper and steel specimens, as the sliding speed increases the portion of tensile residual stresses and their depth of spread increase. The arising of large tensile stresses and the increase in depth of the layer of their concentration occur also with an increase in the loading. Under rolling the influence of friction conditions is analogous to that observed under friction. In a plastic material (Cu) at rolling even at a low velocity, tensile residual stresses arise of the same order of magnitude as the compressive ones. The depth of spread of residual stresses for the case of rolling friction is usually greater than for sliding friction. There are 15 references.

L. Gordiyenko

[Abstracter's note: Complete translation]

Card 2/2

S/139/60/000/01/038/041
E073/E335

Investigation of the Wear-resistance of Steel Heat-treated to Obtain Granular Cementite

and annealed at 680 °C for durations of 2, 6 and 24 hours. Thus, four batches of specimens of U8 steel and three batches of the steel 45 with differing dispersions of the carbide particles were obtained. The wear-resistance tests were carried out under conditions of dry friction. The lower specimen, roller of 50 mm dia, was produced from steel ShKh15 with a hardness of R_c = 61-62 after heat treatment, having a ground rubbing surface. The tested specimen was placed on the immobile axis of the top shaft of the machine, the contact area was 0.8 cm^2. The specimen was loaded with 50 kg. After manufacture the specimens were run in for 20-30 min and only then were they heat-treated. During the experiments the moment of friction as well as the friction work were measured. The wear was evaluated from the loss of weight as determined by analytical scales with an accuracy of 0.1 mg. After the tests the microhardness of the rubbing

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S/139/60/000/01/038/041
E073/E335

Investigation of the Wear-resistance of Steel Heat-treated to Obtain Granular Cementite

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete imeni V.V. Kuybysheva (Siberian Physico-technical Institute of Tomsk State University)

SUBMITTED: September 5, 1959

Card 4/4

On the Influence of Preliminary Work-hardening on the Wear of Carbon Steels

accuracy of 0.1mg and the microhardness was measured at the surface with a load of 100 g. Following that, the specimens were placed back into the same test rig and subjected to dry friction at speeds of 0.7 m/sec at a pressure of 50 kg/cm^2. After certain time intervals the rate of wear (by wt.) and the microhardness of the friction surface were measured and the results averaged for 4 to 5 specimens. It was found that the wear of preliminarily work-hardened specimens was up to 40 times less than the wear of annealed specimens; for steel 45 preliminary friction treatment reduced wear to the same extent as ordinary quenching. Micro-hardness values are reproduced in Fig. 2; after preliminary friction working the microhardness for the steel 45 was 1080 kg/mm^2. During wear tests these specimens conserved high hardness. Wear tests on commercial-iron specimens showed that their hardness dropped only slightly if preliminary friction working was effected with a pressure of 80 kg/cm^2; for a pressure of 50 kg/cm^2 the specimens maintained a high hardness at first but failed after a friction travel of 4 km. Thus, a layer produced at a relatively

KUZNETSOV, V.D.; SAVITSKIY, K.V.; SUKHARINA, N.N.; ZHDANOVA, V.N.; TOPOROV, G.V.; SAVITSKIY, A.P.

Effect of temperature variations and the speed of deformation on properties of steels with a varying dispersivity of carbide inclusions. Issl. po zharopr. splav. 6:56-63 '60. (MIRA 13:9)
(Steel--Hardening) (Metals, Effect of temperature on)

18 8200

31857
S/123/61/000/023/003/018
A052/A101

AUTHOR: Sukharina, N.N.

TITLE: The effect of friction prehardening on the wear resistance of steels

PERIODICAL: Referativnyy zhurnal. Mashinostroyeniye, no. 23, 1961, 13, abstract 23A123 (V sb. "Sukhoye treniye", Riga, AN LatvSSR, 1961, 121 - 128)

TEXT: The degree of the effect of the hard layer, produced by friction hardening, on the wear resistance of steels was determined and the effectiveness of this kind of hardening was compared with the increase of the wear resistance by means of induction hardening. The formation of a high hardness layer at high sliding speeds with lubrication leads to an increase of the wear resistance of steels both low-carbon ones and those with a high carbon content at the subsequent dry friction testing. With the increase of the hardness of the surface layer produced by friction hardening the wear resistance of steels increases. The tests show, that the phenomenon of formation at high sliding speeds of a high-hardness layer can be utilized for increasing the wear resistance of machine elements in the form of revolution bodies.
[Abstracter's note: Complete translation]

Card 1/1

30893
S/145/61/000/010/005/008
D221/D304

11730

AUTHOR: Sukharina, N. N., Engineer

TITLE: Improving the wear resistance of surfaces by their preliminary hardening through friction

PERIODICAL: Izvestiya vysshikh uchebnykh zavendeiy. Mashinostroyenie, no. 10, 1961, 124-130

TEXT: The author analyzes the effect of conditions of friction on the wear resistance of the surface layer, as well as the importance of carbon content in the steel, comparing them with other forms of work hardening. The blocks with specimens were fastened in a lathe, permitting a wide range of speeds to be used. The pressure was adjusted by weights, and cont-inuous lubrication ensured. The materials were selected so as to reveal a marked change in their physical and mechanical state. Their microhardness and also the microstructure were examined. The wear of specimens preliminarily hardened by friction after a distance of 4 km is 30 - 35 times smaller than the wear of annealed samples. There is little evidence of carbon content effect. The effect of pressure revealed

Card 1/3

SAVITSKIY, K.V.; SUKHARINA, N.N.

How rubbing between steels leads to the formation of a "white" layer. Izv. vys. ucheb. zav.; fiz. no.5:170-173 '62. (MIRA 15:12)

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosudarstvennom universitete imeni Kuybyysheva.
(Steel)
(Friction)

SUKHARINA, N.N.; POLOZHIY, I.S.

Softening of the white coating when heated in a vacuum. Izv. vys.ucheb.zav.; fiz. no.3:76-79 '63. (MIRA 16:12)

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosudarstvennom universitete imeni Kuybysheva.

MIKHEYEV, V.P.; SUKHARINA, N.N.

Machines for analyzing the slide contact between the current collectors and the overhead contact line. Trudy [illegible] I 4.: 109-118 '63.

Structure of the surface layers of pantograph steel plates. Ibid.:137-145 (MIRA 18:7)

GAL'PERIN, Z.S.; KLYCHKOV, P.D.; LAKH, Ye.I.; GORBACHEVSKIY, V.A.; DARAGAN, L.D.; RYZHKOV, A.N.; SUKHARNIKOV, I.O.; TURASS, A.L.; GATSKEVICH, V.A., red.

[Manual on automotive transportation of lumber] Spravochnik po lesovoznomu avtomobil'nomu transportu. Moskva, Lesnaia promyshlennost', 1965. 446 p. (MIRA 19:1)

1. Khimki. TSentral'nyy nauchno-issledovatel'skiy institut mekhanizatsii i energetiki lesnoy promyshlennosti.

L 26163-66 EWA(h)/EWT(d)/EWT(1)/EWP(1) IJP(c) TG

ACC NR: AP6006442 SOURCE CODE: UR/0420/65/000/003/0097/0101

AUTHOR: Sukharnikov, V. N.

ORG: none

TITLE: Dimension theory in commercial aeronautical engineering maintenance

SOURCE: Samoletostroyeniye i tekhnika vozdushnogo flota, no. 3, 1965, 97-101

TOPIC TAGS: reliability theory, dimension analysis, aircraft maintenance, statistics, aircraft propeller, aircraft / AV-68I aircraft propeller, IL-18 aircraft, An-10 aircraft

ABSTRACT: A method for determining the frequency of failures for aircraft being built or aircraft for which there are no statistical data is described. This method is based on statistics and dimension theory. The frequency of failures is given by

$$\lambda_a = cf(a_1, a_2, \ldots a_n),$$

where C is a dimensionless factor determined either by dimension theory or experimentally as

$$c = \frac{\lambda_a}{f(a_1, a_2, \ldots a_n)};$$

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and $f(a_1, a_2, \ldots, a_n)$ is a function dependent upon the characteristic parameters. As an example, the frequency of failures of the AV-68I propeller of the Il-18 aircraft is determined. It is found to be $1.43 \cdot 10^{-4}$ 1/sec. The accuracy of the method is a function of the number of factors that determine the desired value. The method presents a compromise solution to problems of safety and economy. Orig. art. has: 23 formulas and 2 tables.

SUB CODE: 01/ SUBM DATE: 00/ ORIG REF: 004

Card 2/2 CC

LEVI, M.I.; SUCHKOV, Yu.G.; ORLOVA, G.M.; GERASYUK, L.G.; SHKODA, A.M.; PEYSAKHIS, L.A.; SIDOROVA, A.N.; LOPATINA, N.F.; SUKHARNIKOVA, N.A.; PAK, G.Yu.; MUMINOV, K.M.; DONSKAYA, T.N.; NASSONOV, I.S.; VEYNBLAT, V.I.; MIRTAZANOVA, E.Sh.; SHTEL'MAN, A.I.; LAVRENT'YEV, A.F.; BASOVA, N.N.; GOLKOVSKIY, G.M.; KULOV, G.I.; SALAMOV, N.I.; ZALYGINA, N.I.

Results of the testing of the reactions of passive hemagglutination and neutralization of antibodies in the epizootologic examination of wild rodents for plague. Zhur. mikrobiol., epid. i immun. 40 no.12: 118-119 D '63. (MIRA 17:12)

1. Iz Rostovskogo i Sredne Aziatskogo protivochumnykh institutov, Chimkentskoy, Taldy-Kurganskoy, Aralomorskoy, Turkmenskoy, Astrakhanskoy i Frunzenskoy protivochumnykh stantsiy.

SUKHAR'KOVA, Z.M.; AKHUNDOV, A.A.; OVEZOV, S.O.

Hepatolienal syndrome in the clinical aspects of tuberculosis. Zdrav. Turk. 6 no.3:23-28 My-Je '62. (MIRA 15:6)

1. Iz kafedry fakul'tetskoy terapii (zav. - dotsent Ye.A. Pletnev) Turkmenskogo gosudarstvennogo meditsinskogo instituta i Respublikanskogo protivotuberkuleznogo dispansera (glavnyy vrach F.M. Ismailov).
(LIVER--TUBERCULOSIS) (SPLEEN--TUBERCULOSIS)

GORBACHEVSKIY, Viktor Andreyevich; GAL'PERIN, Zinoviy Samoylovich Gal'perin; KLYCHKOV, Pavel Dmitriyevich; LAKH, Yevgeniy Ivanovich; LEKSAU, Igor' Nikolayevich; PRASOLOV, Boris Aleksandrovich; RYZHKOV, Aleksey Nikolayevich; SUKHARNIKOV, Iosip Osipovich; SHESTAKOV, Boris Aleksandrovich; ALPATSKIY, I.V., red.; PLESKO, Ye.P., red.izd-va; GRECHISHCHEVA, V.I., tekhn. red.

[Utilization of logging truck transportation] Ekspluatatsiia lesovoznogo avtomobil'nogo transporta. [By] V.A. Gorbachevskii i dr. Moskva, Goslesbumizdat, 1962. 296 p. (MIRA 16:5)

(Lumber--Transportation) (Tractor trains)

S/139/61/000/003/010/013
E193/E335

188200 2808

AUTHOR Sukharov, V.F.

TITLE On the Problem of the Existence of a Principle of Equivalence of the Influence of Temperature and Strain-rate on the Resistance-to-deformation of Nickel and Nichrome with 18.3 at.% Chromium

PERIODICAL Izvestiya vysshikh uchebnykh zavedeniy, Fizika 1961, No. 3 pp. 147 - 154

TEXT: According to the theory of strain-hardening and relaxation strain-hardening depends solely on the properties of the material and constitutes a non-thermal process, whereas softening is a thermally activated process and, consequently, depends on both temperature and the rate of deformation. In general the decrease in strength $\Delta\sigma$ at a temperature T and in a time interval Δt during which the strain increases from ε to $\varepsilon + \Delta\varepsilon$ is given by

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S/139/61/000/003/010/013
E193/E335

On the Problem of ...

$$\Delta\sigma = f(\Delta t) \sum_i g_i(\sigma, \varepsilon) e^{-\frac{U_i(\sigma, \varepsilon)}{RT}} \qquad (1)$$

where $U_i(\sigma,\varepsilon)$ is the activation energy of the i-th elementary process leading to the decrease in strength, $g_i(\sigma,\varepsilon)$ being a function determining the number of places that can be affected. If the softening process is associated mainly with one type of elementary acts and if U does not depend on σ and ε, deformation under any given set of conditions of strain rate, v_1, and temperature, T_1, such that $v_1 e^{U/RT_1} = \text{const}$, will produce one and the same stress-strain curve. For two different sets of conditions (v_1, T_1) and

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On the Problem of ....

(v_2, T_2) this proposition can be written as:

$$\frac{v_1}{v_2} = \frac{e^{U/RT_2}}{e^{U/RT_1}} \qquad (2).$$

This equation has been termed the condition of equivalence of the influence of temperature and strain rate on the resistance of metals to deformation. Hence Eq. (2) is valid if:

$$\Delta\sigma' = f(\ldots)\ldots\sum_1 g_1(\ldots)e^{\frac{U_1(\sigma,\ldots)}{RT}} \ldots f(\ldots)g(\sigma,t)e^{-U/RT_1} \qquad (3).$$

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On the Problem of ...

If the conditions of strain-rate and temperature are chosen so that several processes contribute simultaneously to the softening process, Eq. (2) will become

$$\frac{v_1}{v_2} = \frac{\sum_i g_i(\sigma,\varepsilon) e^{-\frac{U_i}{RT_1}}}{\sum_i g_i(\sigma,\varepsilon) e^{-\frac{U_i}{RT_2}}} \qquad (4) .$$

The argument outlined above is based on the assumption (admissible in the case under consideration) that the activation energy of the i-th process is independent of the temperature. The object of the present investigation was to determine the limits of applicability of Eq. (2) and to study the sensitivity

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of activation energy to variation of stress and strain. The experimental work was carried out on pure nickel and on a Ni-Cr alloy containing 18.9 at.% Cr. All the experimental specimens (7 mm in diameter, 11 mm long) were vacuum-annealed at 900 °C and quenched after 2 hours at that temperature. The experiments consisted of compressing the test pieces at temperatures between 300 and 900 °C at three different rates of strain: $v_1 = 2$, $v_2 = 20$ and $v_3 = 2\,400\%/h$. Tests at temperatures above 600 °C were carried out in vacuum. Graphite was used to reduce the contact friction and to prevent the test pieces from sticking to the press base plates. Some of the results are reproduced graphically. The strain/stress curves of nickel are shown in Fig. 1, where σ (kg/mm^2) is plotted against ε (%) for specimens tested at 400 °C (Curves I) and 800 °C (Curves II) at the rates of strain v_1, v_2 and v_3 (Curves 1, 2 and 3, respectively). The stress/strain curves of the Ni-Cr alloy, tested at 700 °C (Curves I) and

800 °C (Curves II), are reproduced in the same manner in Fig. 2. Finally, in Fig. 3 the stress (σ, kg/mm^2), corresponding to the degree of deformation ε = 30% in nickel (Curves I) and Ni-Cr alloy (Curves II) test pieces, is plotted against the test temperature (°C), Curves 1-3 relating to materials compressed at v_1, v_2 and v_3, respectively. The data of the type reproduced in Fig. 3 were used to determine the values of equivalent v and T. This was done by intersecting the σ/T curves by a line σ = const; the points of intersection determine the equivalent pairs of values (v_1, T_1), (v_2, T_2) and (v_3, T_3), corresponding to a given ε. In the case of Fig. 3, for instance, a σ = const. line, intersecting Curve 2 at 400 °C, will intersect Curve 1 at 365 °C and Curve 3 at 476 °C. Hence, three pairs of conditions are obtained: (v_1, 365 °C), (v_2, 400 °C) and (v_3, 476 °C). By substituting these figures in Eq. (2), three values of activation energy were determined.

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On the Problem of ....

U_{12} for the (v_1, 365 °C) and (v_2, 400 °C); U_{23} for the (v_2, 400 °C) and (v_3, 476 °C) and U_{13} for the (v_1, 365 °C) and (v_3, 476 °C) pairs of conditions. The values of U, determined in this manner, corresponded to ε = 30%. Similar calculations were carried out for ε = 2, 5 and 10%. Analysis of the results, obtained in this manner for nickel, showed that at temperatures below the recrystallization temperature (approximately 548 °C at v_2) the values of U_{12}, U_{23} and U_{13} were approximately the same for all magnitudes of ε. It was found also that mean activation energy

$$U_{cp} = \frac{U_{12} + U_{23} + U_{13}}{3}$$

decreased with increasing ε. Since U_{cp} below the recrystallization temperature was temperature-independent, it was possible to average the obtained results which, together with

On the Problem of ....

those obtained earlier on copper, are shown in Fig. 4, where the activation energy of the process of softening, U (kcal/mol), is plotted against the degree of deformation, ε (%), the three curves relating to (I) copper, (II) nickel and (III) nichrome. The results obtained indicate that it is only in certain temperature ranges that the relationship between the resistance of the materials studied to deformation in compression on the one hand, and the temperature and strain rate on the other, is governed by the activation energy which, in turn, either is a function of the degree of deformation (e.g. in nickel and copper) or is independent of this factor (nichrome). In the former case the equivalent conditions can be calculated only for a given degree of deformation; in the latter case, identical stress-strain curves will be obtained under the equivalent conditions in a wide (at least between 10 and 30%) range of the degrees of deformation. At temperatures above the recrystallization temperature, the calculated values of the activation energy do not follow any definite law, which is probably due to the fact that at these

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temperatures two softening process (recovery and recrystallization) of an entirely different nature take place. This conclusion is only valid up to a lower limit of temperature at which, under given conditions of strain rate, recrystallization phenomena can still take place.

Acknowledgments are expressed to Professor M.A.Bolshanina and Docent L.I. Vasil'yev.

There are 5 figures and 18 references: 10 Soviet and 8 non-Soviet. The four latest English-language references quoted are: Ref. 1 - T.A. Trozera, A.D. Sherby and J.E. Dorn - Trans. ASM, 49, 1957; Ref. 7 - J. Weertman - J. Appl. Phys., 26, 10, 1955; Ref. 9 - T.E. Tietz, J.E. Dorn - J. Metals, 8, 2, 1956; Ref. 11 - R. Hoffman, F. Pikus, R. Ward - J. Metals, 8, 5, 1956.

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E193/E335

On the Problem of ....

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete imeni V.V. Kuybysheva
(Siberian Physicotechnical Institute of Tomsk State University imeni V.V. Kuybyshev)

SUBMITTED: May 27, 1960

Card 10/12

SUKHARTSEV, G.A., inzhener.

Determining the efficiency of the profile and the optimum pitch of turbine vanes in a static apparatus. [Trudy] MVTU no.64:102-109 '55. (MLRA 9:8)

(Hydraulic turbines)

GURGENIDZE, G.V.; MAISAYA, V.R.; SUKHARULIDZE, A.I.

Effect of aminazine on the blood sugar level. Soob. An Gruz. SSR 25 no. 4:413-416 O '60. (MIRA 14:1)

1. Ministerstvo zdravookhraneniya Gruzinskoy SSR, Nauchno-issledovatel'skaya laboratoriya pitaniya, Tbilisi. Predstavleno akademikom K.D. Eristavi.
(CHLORPROMAZINE) (BLOOD SUGAR)

KOSTYLEVA, Ye.Ye.; SUKHASHINA, T.K.

The importance of pH of ore quartz suspension [with summary in English]. Geokhimiia no.7:621-625 '57. (MIRA 11:1)

1.Institut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii AN SSSR, Moskva.
(Hydrogen ion concentration) (Quartz)

KRONROD, A. S., RABOVA, Z. S., and SUKHATSHEVA, N. M.

"Two Problems of Non-Diffusional Calculations for Absorbing Blocks,"

paper to be presented at 2nd UN Intl. Conf. on the peaceful uses of Atomic Energy, Geneva, 1 - 13 Sep 1958.

SUKHENKO, A.A.

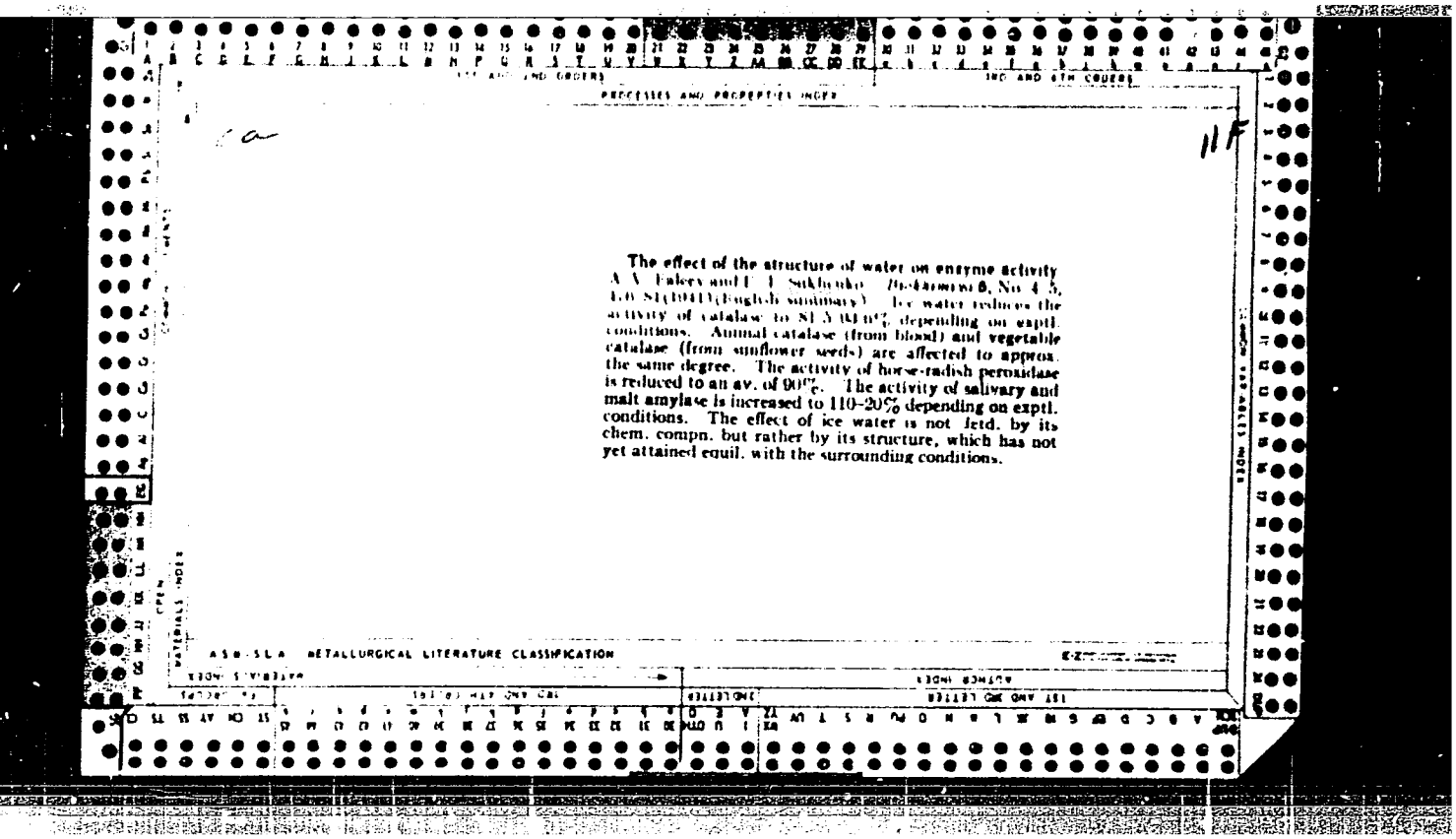
Alarm water level indicator for steam boilers. Spirt. prom. 29 no.6:34 '63. (MIRA 16:10)

1. Rozhdestvenskiy spirtovoy zavod.
(Liquid level indicators)

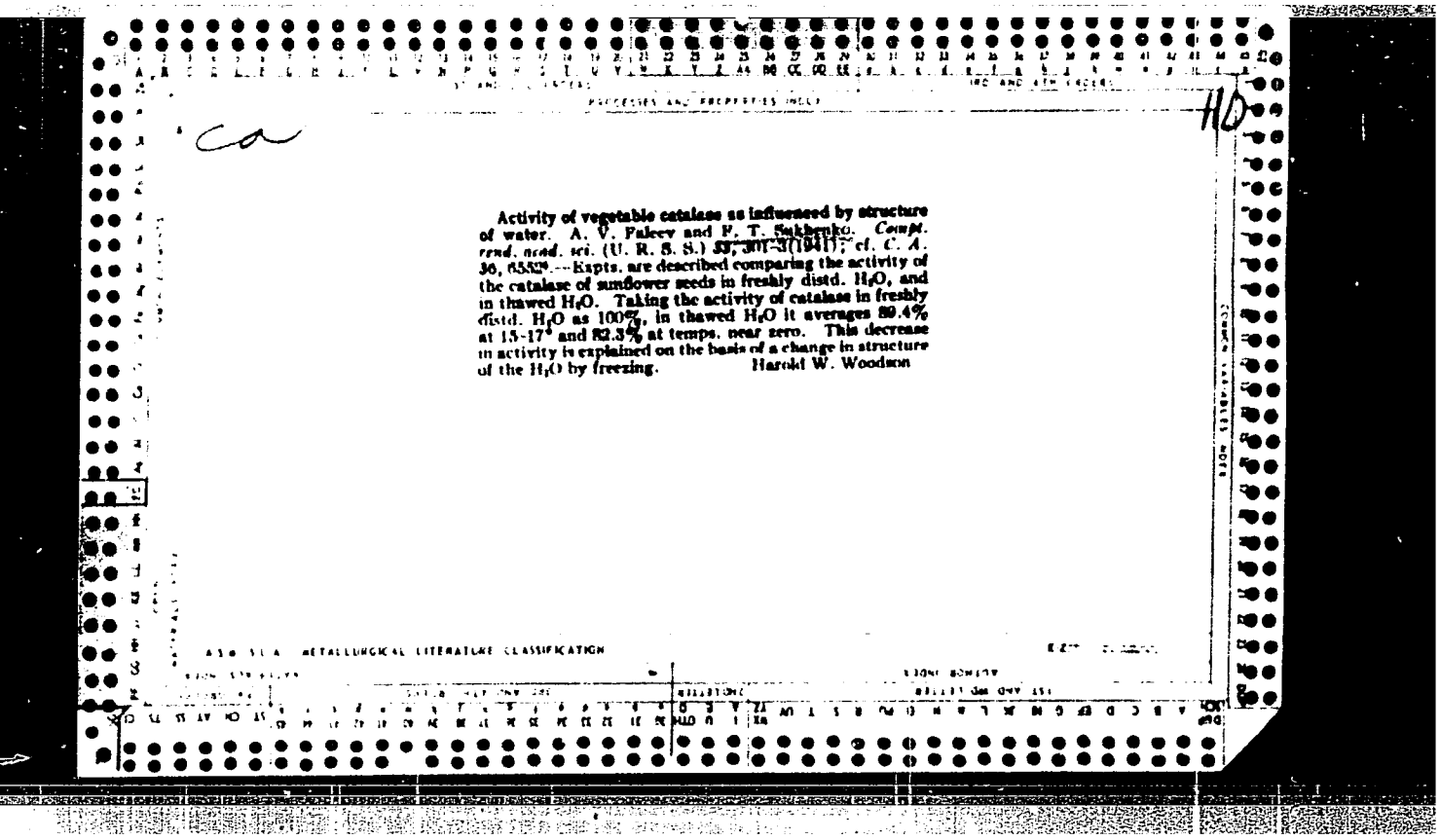
SUKHENKO, A.A.

System for conveying sulfuric acid to the production sites. Spirt.prom. 29 no.1:28-29 '63. (MIrA 16:2)

1. Rozhdestvenskiy spirtovoy zavod.
(Sulfuric acid--Transportation) (Distilleries--Equipment and supplies)



The effect of the structure of water on enzyme activity. A. V. Fakeev and L. I. Sukhenko. *Biokhimiya* 8, No. 4-5, 1.6 S1(1941)(English summary). Ice water reduces the activity of catalase to 81.5-90.0% depending on exptl. conditions. Animal catalase (from blood) and vegetable catalase (from sunflower seeds) are affected to approx. the same degree. The activity of horse-radish peroxidase is reduced to an av. of 90%. The activity of salivary and malt amylase is increased to 110-20% depending on exptl. conditions. The effect of ice water is not fctd. by its chem. compn. but rather by its structure, which has not yet attained equil. with the surrounding conditions.



Activity of vegetable catalase as influenced by structure of water. A. V. Paleev and F. T. Sukhenko. *Compt. rend. acad. sci.* (U. R. S. S.) [illegible]; cf. *C. A.* 36, 6552⁹.—Expts. are described comparing the activity of the catalase of sunflower seeds in freshly distd. H_2O, and in thawed H_2O. Taking the activity of catalase in freshly distd. H_2O as 100%, in thawed H_2O it averages 89.4% at 15–17° and 82.3% at temps. near zero. This decrease in activity is explained on the basis of a change in structure of the H_2O by freezing. Harold W. Woodson

[illegible], T. [illegible].

and BELIAYEV, K. I. "Biochemical Changes in Wheat Grain during Infection with 'Infecting Fungus' (Fusarium," Biokhimiia, vol. 11, 1946, pp. 219-226. 385 B523

So: Sir: SI-90-53, 15 Dec. 1953

USSR/Medicine - Ascorbic Acid Mar/Apr 48
Medicine - Blood

"The Effect of Blood on the Oxidation of Ascorbic Acid," F. T. Sukhenko, Chair of Biochem, Novosibirsk Med Inst, 3½ pp

"Biokhimiya" Vol XIII, No 2

Reports experiments carried out with human and rabbit blood at room temperature. Found that aqueous solution of ascorbic acid is oxidized comparatively slowly by hemolyzed blood. Process is more rapid in phosphate buffer. Copper ions accelerate oxidation of ascorbic acid, but this effect is less pronounced in presence of blood. It may be considered that this

3/49T78

USSR/Medicine - Ascorbic Acid (Contd) Mar/Apr 48

phenomenon is caused by reaction between ascorbic acid and constituents of blood. Submitted 9 Aug 47.

3/49T78

PA 63/49T44

USSR/Medicine - Fungi May/Jun 49
Medicine - Culture

"Conversion of Nitrogenous Matter in Nutrient Media and the Disintegration of Gelatin by Genus Fusarium," F. T. Sukhenko, O. L. Semovskikh, Chair of Biochem, Novosibirsk Med Inst, 9 3/4 pp

"Biokhim" Vol XIV, No 3 - p. 201-10

As a result of the activity of genus Fusarium fungus, the composition of nitrogenous substances in a nutrient medium was changed qualitatively and quantitatively. In bouillon, the total quantity of the amine type decreased, while the ammonium type

[redacted] 63/49T44

USSR/Medicine - Fungi (Contd) May/Jun 49

increased. In a medium with gelatin, again the total quantity decreased, but amounts of the ammonium and, particularly, the amine increased. Fungus has a proteolytic system containing at least two components, one of which has a much faster rate of activity than the other, causing a cleavage of pentide bonds. Submitted 10 Jul 48.

[redacted] 63/49T44

SUKHENKC, F. T.

USSR/Medicine - Blood Transfusion Sep/Oct 51

"Effect of Blood Components on the Rate of Oxidation of Ascorbic Acid," F. T. Sukhenko, N. N. Priss, V. P. Radushkevich, Chair of Biochem, Novosibirsk Med Inst, and Novosibirsk Blood Transfusion Sta

"Biokhim" Vol XVI, No 5, pp 385-389

Citrates as compared with phosphates inhibit oxidation of ascorbic acid (I) in the presence of undestroyed erythrocytes and their hemolysates and in their absence. Whole blood, plasma, erythrocytes and their hemolysates, coverings and content of erythrocytes inhibit,

202T78

USSR/Medicine - Blood Transfusion (Contd) Sep/Oct 51

but do not prevent oxidation of I. It is probable that in addn to catalase, amino acids, and sulfhydryl groups, blood proteins (particularly lipoid-protein complexes of erythrocyte coverings) play an essential role in stabilizing I in blood.

202T78

USSR/Biochemistry - Plant Parasites (Fungus Diseases) Nov/Dec 51

"Splitting of Proteins by Enzymes of Fusarium Avenaceum," F. T. Sukhenko, Ye. S. Podgaynaya, Chair of Biochem, Novosibirsk Med Inst

"Biokhim" Vol XVI, No 6, pp 528-536

Studied effect of enzymes of fungus Fusarium avenaceum on proteins of wheat, peas, eggs, and blood plasma. Plant proteins are rapidly split by the fungus enzymes, while natural egg albumen, egg albumen denatured by alc, and proteins of blood plasma are split slowly. Sharp differences in the

202T15

USSR/Biochemistry - Plant Parasites (Fungus Diseases) (Contd) Nov/Dec 51

rate of enzymatic action can be explained by the different nature of the proteins and by the specificity of Fusarium enzymes toward plant proteins.

202T15

[illegible], [illegible]

"Changes in the Composition of Nitrogenous Substances in Glucopeptone Nutritive Medium during the Process of Growth of Microsporum lanosum et ferrugineum."

Vestnik venerologii i dermatologii (Bulletin of Venerology Dermatology), Nos 1, January - February 19[illegible], ([illegible]), Moscow.

Vitaminization of natural and dried blood plasma. F. T. Sukhenko and N. N. Priss (Med. Inst. and Transfusion Sta., Novosibirsk). *Voprosy Med. Khim.* 2, No. 1, 32–9(1956). —Ascorbic acid (I) was dissolved at 100, 500, and 1000 mg. % in H_2O and in the following solns.: physiol. saline, 6% neutral Na citrate, 3.5% Na acid citrate, 40% glucose, and No. 7 blood preservative; solns. were titrated to det. I concn. with 2,6-dichloroindophenol before and after autoclaving at 118–22° for 30 min. At 100 mg. % of I, losses were 11.0–33.1%; at 500 mg. %, 4.3–12.7%; at 1000 mg. %, 1.4–14.0%. In another series I was added to plasma (II) from fresh citrated blood at 50, 100, 200, and 400 mg. % and its concn. detd. as % of original before and after pptn. of proteins with Cl_3CCO_2H; av. losses of I before and after pptn. were 3.8–6% and 12–19%, resp. In another series II contg. I was sealed into ampuls with and without thiamine (III) at a predetd. II/air (vol./vol.) ratio; results showed that addn. of III was some help in preventing oxidation of I but that the relative vol. of air present was more important; max. length of preservation of I in II was 28 days. When II contg. I at 177–387 mg. % was sealed into ampuls under air, CO_2, in a vacuum, or completely filling the ampul, I was no longer present after 20 days under air, but only 2.4–3% was lost after 70 days (max. length of expt.) when ampuls were completely filled. I in 40% glucose soln. was mixed with II to give I concn. of 85–382 mg. %; this mixt. was dried and sealed in evacuated ampuls or those contg. air or CO_2. After 75 days the concn. of I in ampuls evacuated or contg. air was 94.5 and 72.8%, resp. of original concn.; after 190 days 82 and 60.3%, resp. Moisture unfavorably influenced the preservation of I and dried II.

Cyrus C. Sturgis, Jr.

SUKHENKO, F.T., PODGAYNAYA, Ye.S.

Transformation of uric acid by certain fungi [with summary in English]
Biokhimiia 23 no.2:185-193 Mr-Ap '58 (MIRA 11:6)

1. Kafedra biokhimii Novosibirskogo medinstituta.
(URIC ACID, metabolism
transform. & growth by various fungi (Rus))
(FUNGI, metabolism
uric acid transform. & utilization by various fungi (Rus))

SUKHENKO, F.T.

Utilization of hippuric acid by certain fungi [with summary in English].
Biokhimiia 23 no.4:493-501 Jl-Ag '58. (MIRA 12:3)

1. Chair of Biochemistry, Medical Institute, Novosibirsk.
(FUNGI, metabolism,
hippuric acid (Rus))
(HIPPURATES, metab.
fungi (Rus))

SUKHENKO, F.T.; PODGAYNAYA, Ye.S.

Use of arginine by certain fungi. Izv. Sib. otd. AN SSSR no.8:96-106 '59. (MIRA 13:2)

1.Novosibirskiy meditsinskiy institut.
(Arginine) (Fungi)

PODGAYNAYA, Ye.S.; SUKHENKO, F.T.

Arginase activity of Microsporum lanosum, M. Ferrugineum, Epidermophyton, and Fusarium. Izv.Sib.otd.AN SSSR no.11:73-80 '59. (MIRA 13:4)

1. Novosibirskiy meditsinskiy institut.
(Fungi) (Arginase)

SUKHENKO, F.T.

Proteolytic enzymes of Microsporum ferrugineum and M. lanosum.
Izv.Sib.otd.AN SSSR no.8:91-102 '60. (MIRA 13:9)

1. Novosibirskiy meditsinskiy institut.
(Microsporum) (Proteinase) (Peptidase)

SUKHENKO, F.T.

Proteolytic enzymes of Microsporum ferrugineum and m.lanosum. Report No.2. Izv.Sib.otd.AN SSSR no.9:123-135 '60. (MIRA 13:11)

1. Novosibirskiy meditsinskiy institut.
(Enzymes) (Microsporum)

SUKHENKO, F.T.; PODGAYNAYA, Ye.S.

Use of proline by certain dermatophytes and nondermatophytes. (MIRA 14:6)
Izv.Sib.otd.AN SSSR no.5:86-99'61.
(Proline) (Fungi)

SUKHENKO, F.T.

Proteolytic enzymes of Microsporum ferrugineum Ota 1922 and Microsporum lanosum Sabouraud 1907. Report No. 3. Izv.SO AN SSSR no. 8. Ser. biol.-med. nauk no.2:123-127 '63.(MIRA 16:11)

1. Novosibirskiy meditsinskiy institut.

*

SUKHENKO, G.Ye.

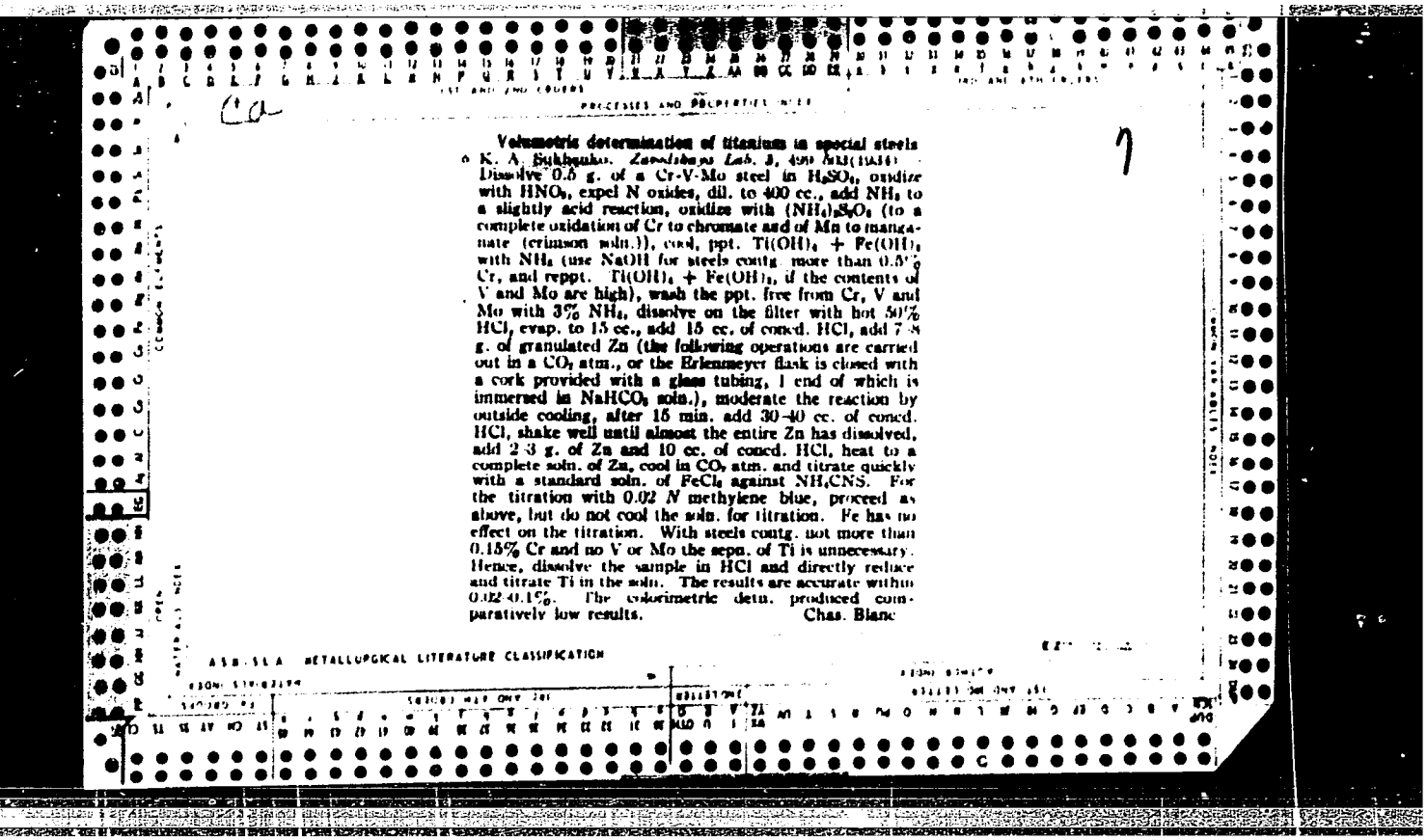
Argulus pellucidus Wagler, 1935 (Crustacea, Branchiura), a new species of the fauna of the U.S.S.R. found in the ponds of the Ukraine. Zool. zhur. 42 no.4:621-622 '63. (MIRA 16:7)

1. Ukrainian Research Institute of Fishery Management, Kiev. (Ukraine—Copepoda)

KRYLOV, V.I.; SUKHENKO, M.I.; ABDRAKHMANOV, G.S.

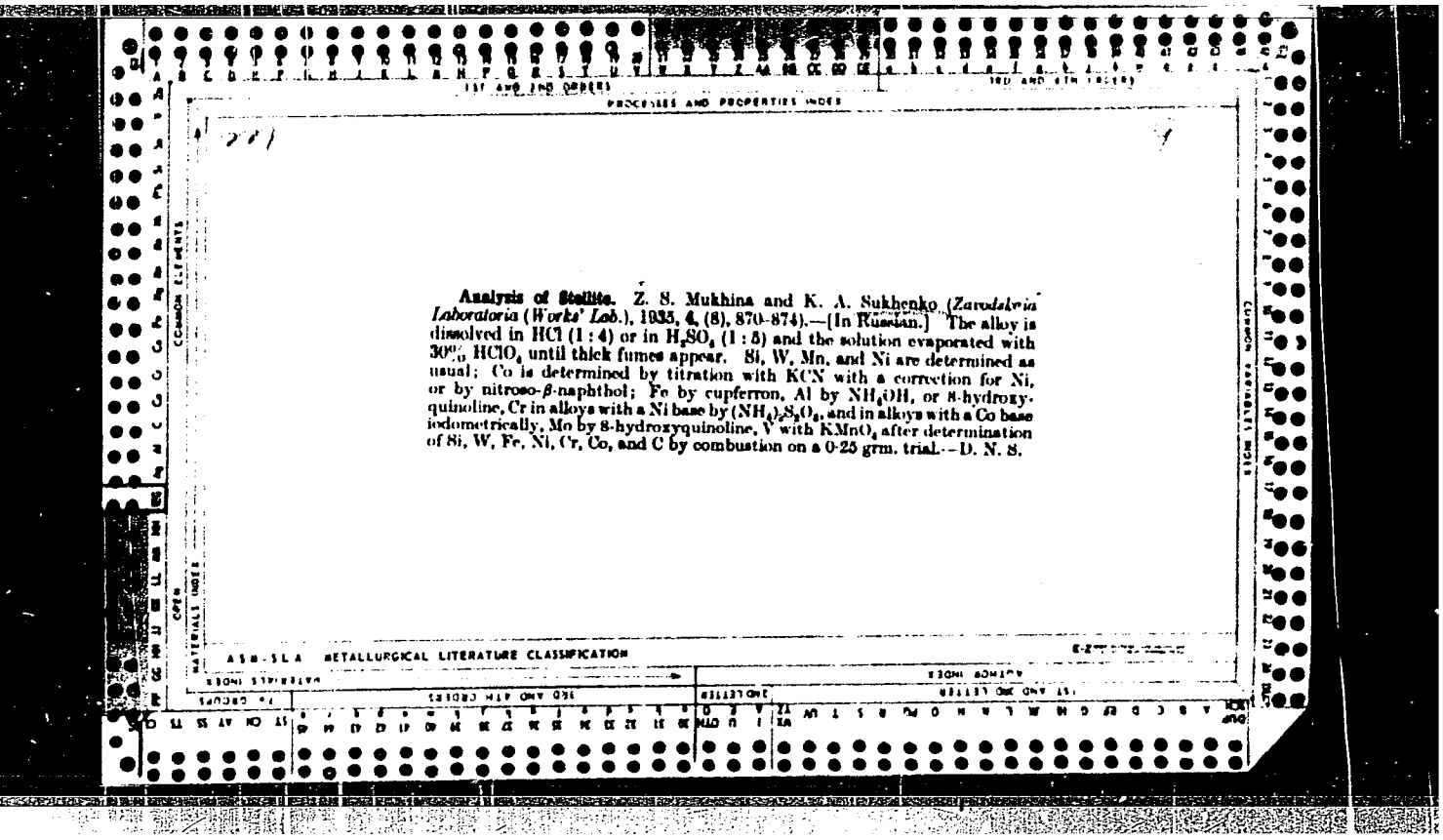
Drillable packer with a self-sealing chamber. Burenie no.8:10-11 '64. (MIRA 18:5)

1. Tatarskiy neftyanoy nauchno-issledovatel'skiy institut, g. Bugul'ma.

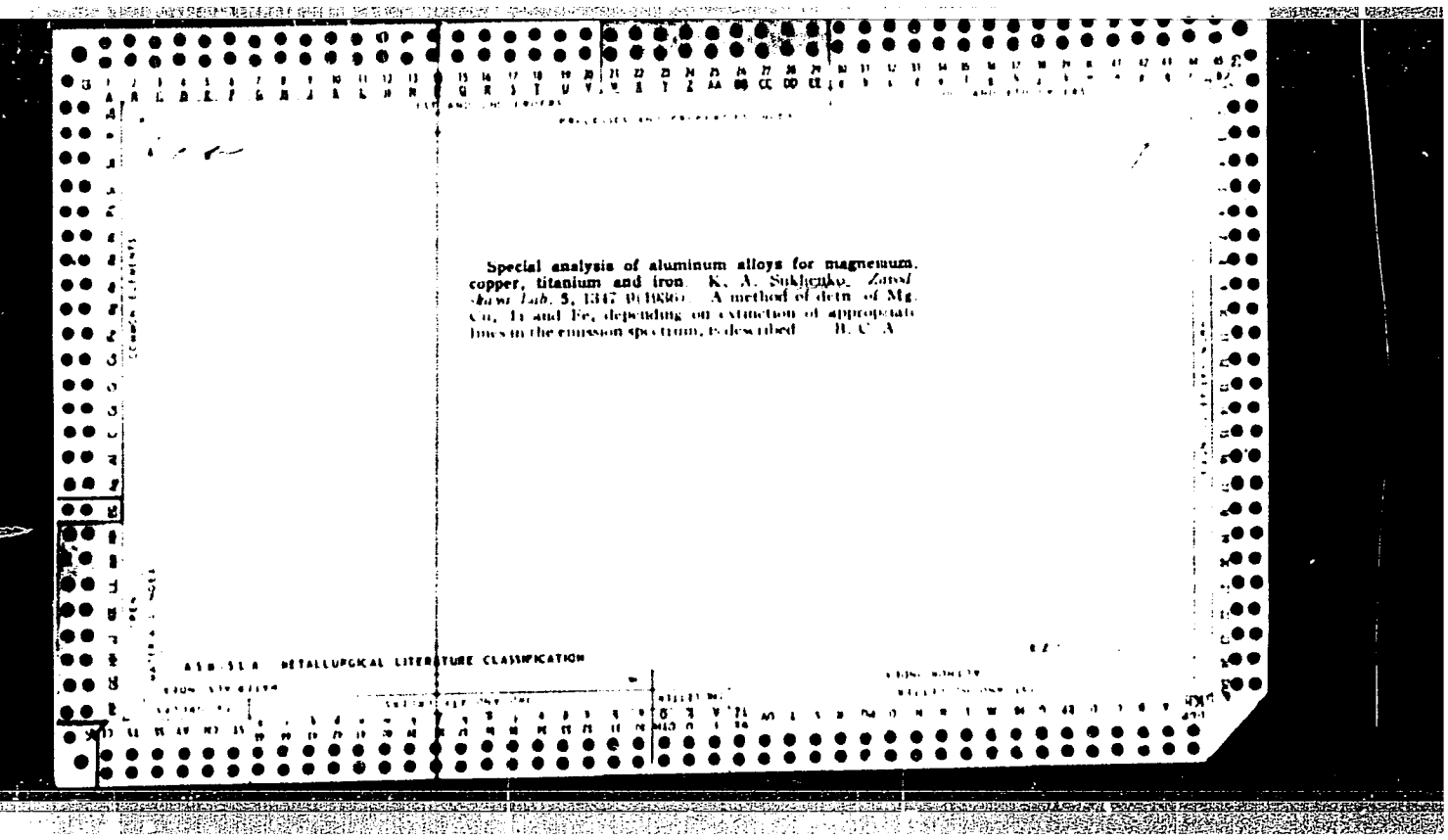


Volumetric determination of titanium in special steels

K. A. Sukhanko. *Zavodskaya Lab.* 3, 499 (1934). Dissolve 0.5 g. of a Cr-V-Mo steel in H_2SO_4, oxidize with HNO_3, expel N oxides, dil. to 400 cc., add NH_3 to a slightly acid reaction, oxidize with $(NH_4)_2S_2O_8$ (to a complete oxidation of Cr to chromate and of Mn to manganate (crimson soln.)), cool, ppt. $Ti(OH)_4$ + $Fe(OH)_3$ with NH_3 (use NaOH for steels contg. more than 0.5% Cr, and reppt. $Ti(OH)_4$ + $Fe(OH)_3$, if the contents of V and Mo are high), wash the ppt. free from Cr, V and Mo with 3% NH_4, dissolve on the filter with hot 50% HCl, evap. to 15 cc., add 15 cc. of concd. HCl, add 7-8 g. of granulated Zn (the following operations are carried out in a CO_2 atm., or the Erlenmeyer flask is closed with a cork provided with a glass tubing, 1 end of which is immersed in $NaHCO_3$ soln.), moderate the reaction by outside cooling, after 15 min. add 30-40 cc. of concd. HCl, shake well until almost the entire Zn has dissolved, add 2-3 g. of Zn and 10 cc. of concd. HCl, heat to a complete soln. of Zn, cool in CO_2 atm. and titrate quickly with a standard soln. of $FeCl_3$ against NH_4CNS. For the titration with 0.02 *N* methylene blue, proceed as above, but do not cool the soln. for titration. Fe has no effect on the titration. With steels contg. not more than 0.15% Cr and no V or Mo the sepn. of Ti is unnecessary. Hence, dissolve the sample in HCl and directly reduce and titrate Ti in the soln. The results are accurate within 0.02-0.1%. The colorimetric detn. produced comparatively low results. Chas. Blanc

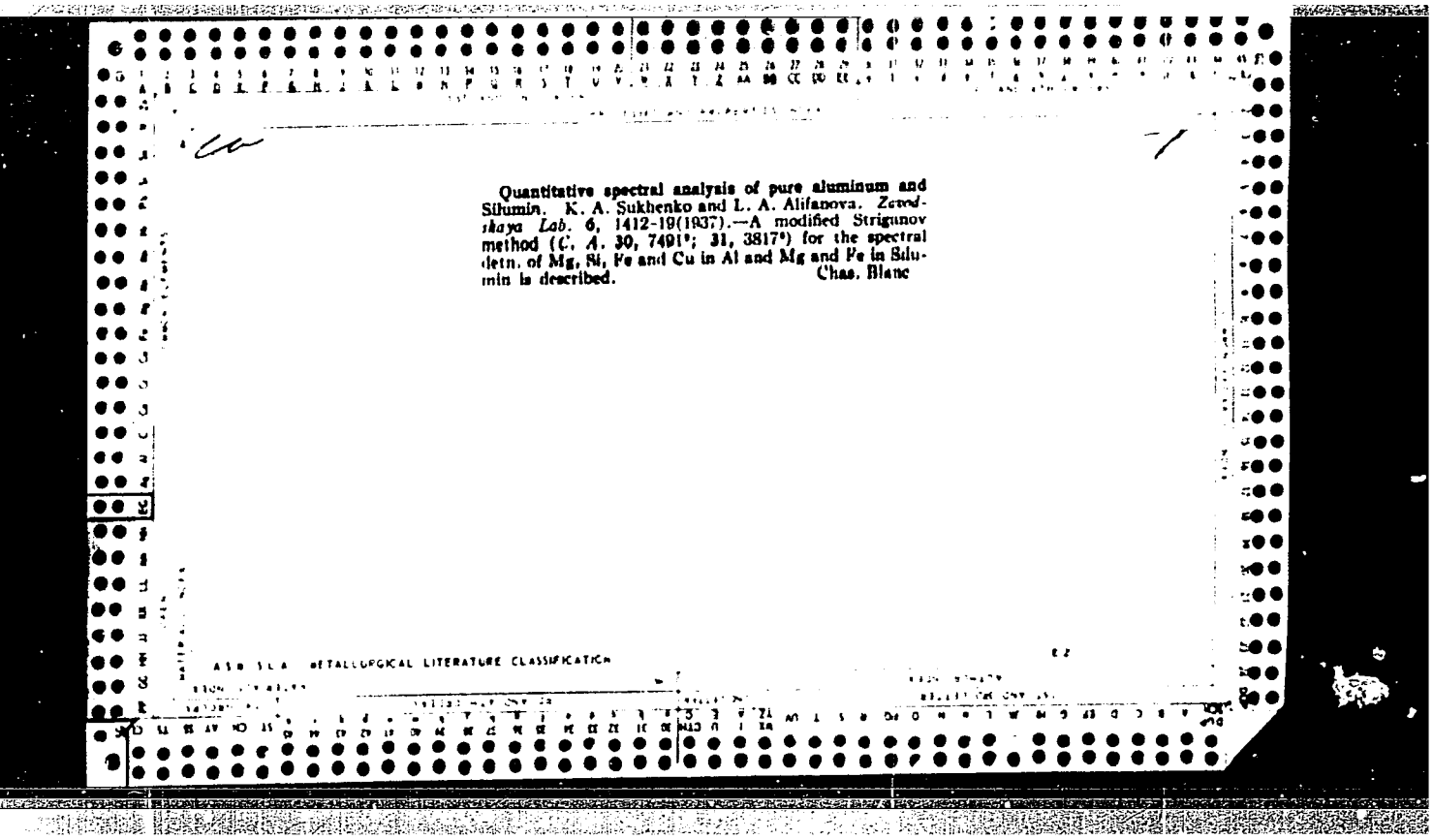


Analysis of Stellite. Z. S. Mukhina and K. A. Sukhenko (*Zavodskaya Laboratoria* (*Works' Lab.*), 1935, **4**, (8), 870-874).—[In Russian.] The alloy is dissolved in HCl (1 : 4) or in H_2SO_4 (1 : 5) and the solution evaporated with 30% $HClO_4$ until thick fumes appear. Si, W, Mn, and Ni are determined as usual; Co is determined by titration with KCN with a correction for Ni, or by nitroso-β-naphthol; Fe by cupferron, Al by NH_4OH, or 8-hydroxyquinoline, Cr in alloys with a Ni base by $(NH_4)_2S_2O_8$, and in alloys with a Co base iodometrically, Mo by 8-hydroxyquinoline, V with $KMnO_4$ after determination of Si, W, Fe, Ni, Cr, Co, and C by combustion on a 0·25 grm. trial.—D. N. S.



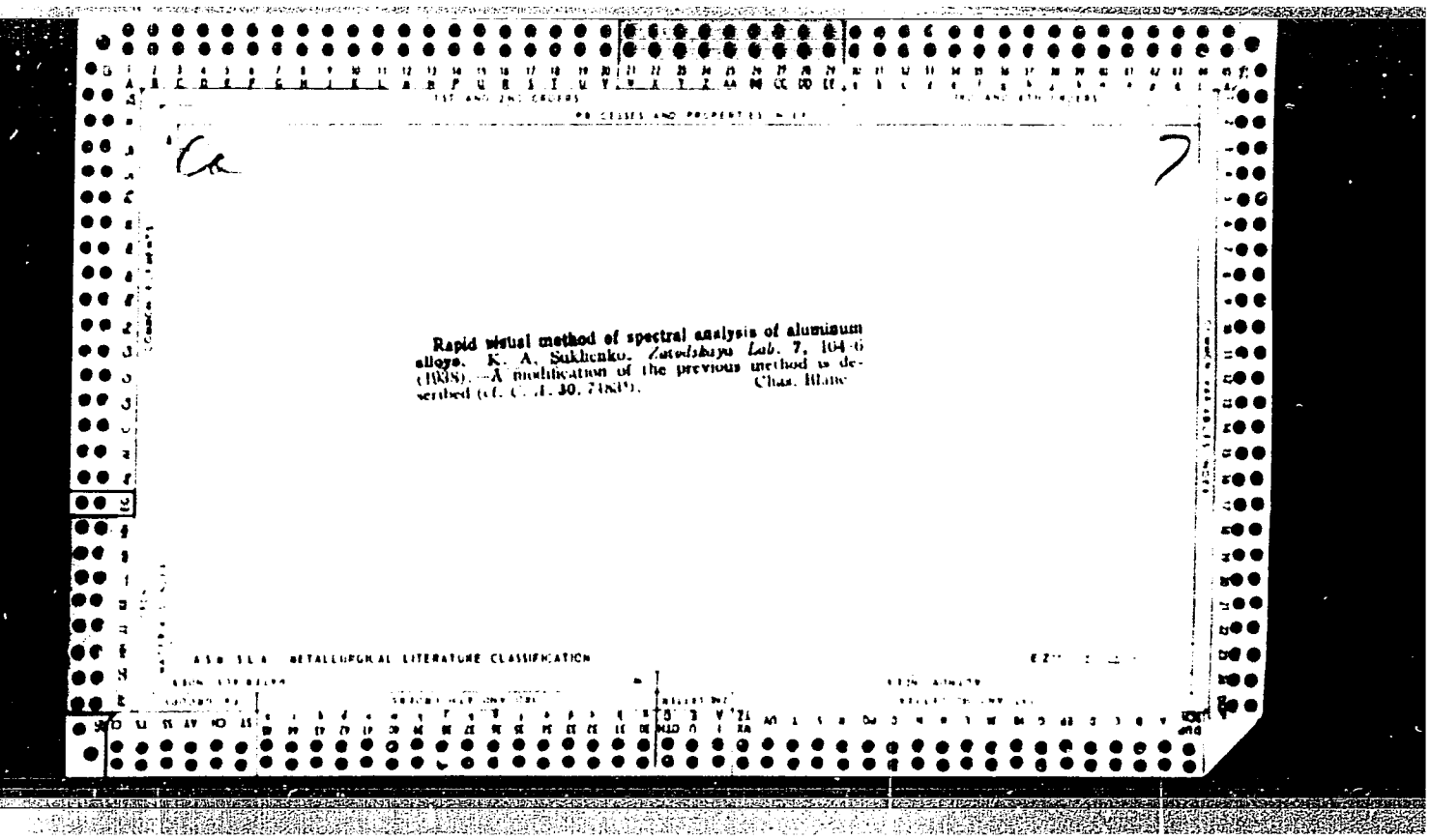
Special analysis of aluminum alloys for magnesium, copper, titanium and iron. K. A. Sukhenko. *Zavod. Lab.* 5, 1347 (1936). A method of detn. of Mg, Cu, Ti and Fe, depending on extinction of appropriate lines in the emission spectrum, is described. H. C. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



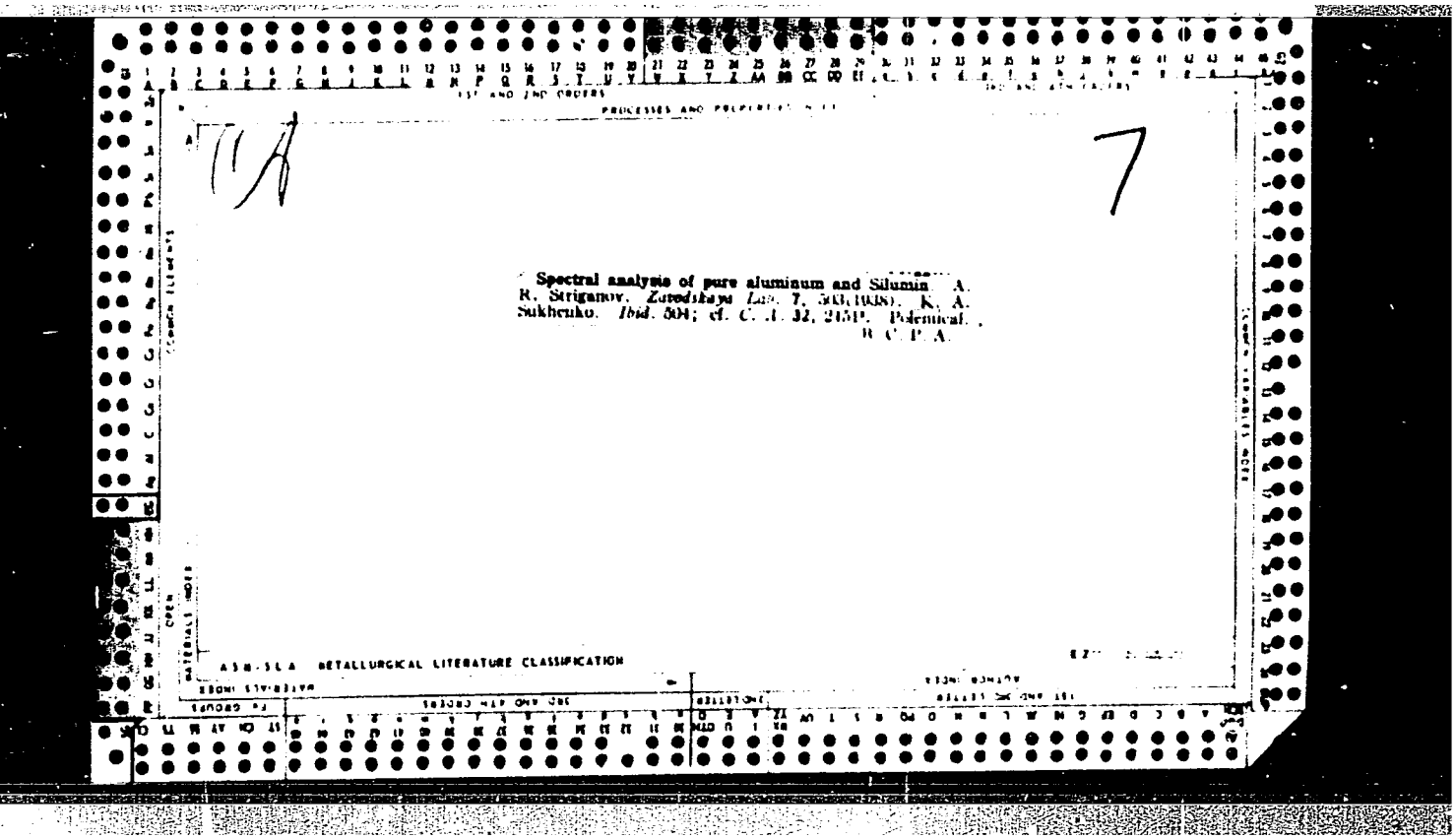
Quantitative spectral analysis of pure aluminum and Silumin. K. A. Sukhenko and L. A. Alifanova. *Zavodskaya Lab.* 6, 1412-19(1937).—A modified Strigunov method (*C. A.* 30, 7491[9]; 31, 3817[9]) for the spectral detn. of Mg, Si, Fe and Cu in Al and Mg and Fe in Silumin is described. Chas. Blanc

ASM METALLURGICAL LITERATURE CLASSIFICATION



Rapid visual method of spectral analysis of aluminum alloys. K. A. Sukhenko. *Zavodskaya Lab.* 7, 104-6 (1938).—A modification of the previous method is described (cf. C. A. 30, 7183⁹). Chas. Blanc

A S M E A METALLURGICAL LITERATURE CLASSIFICATION



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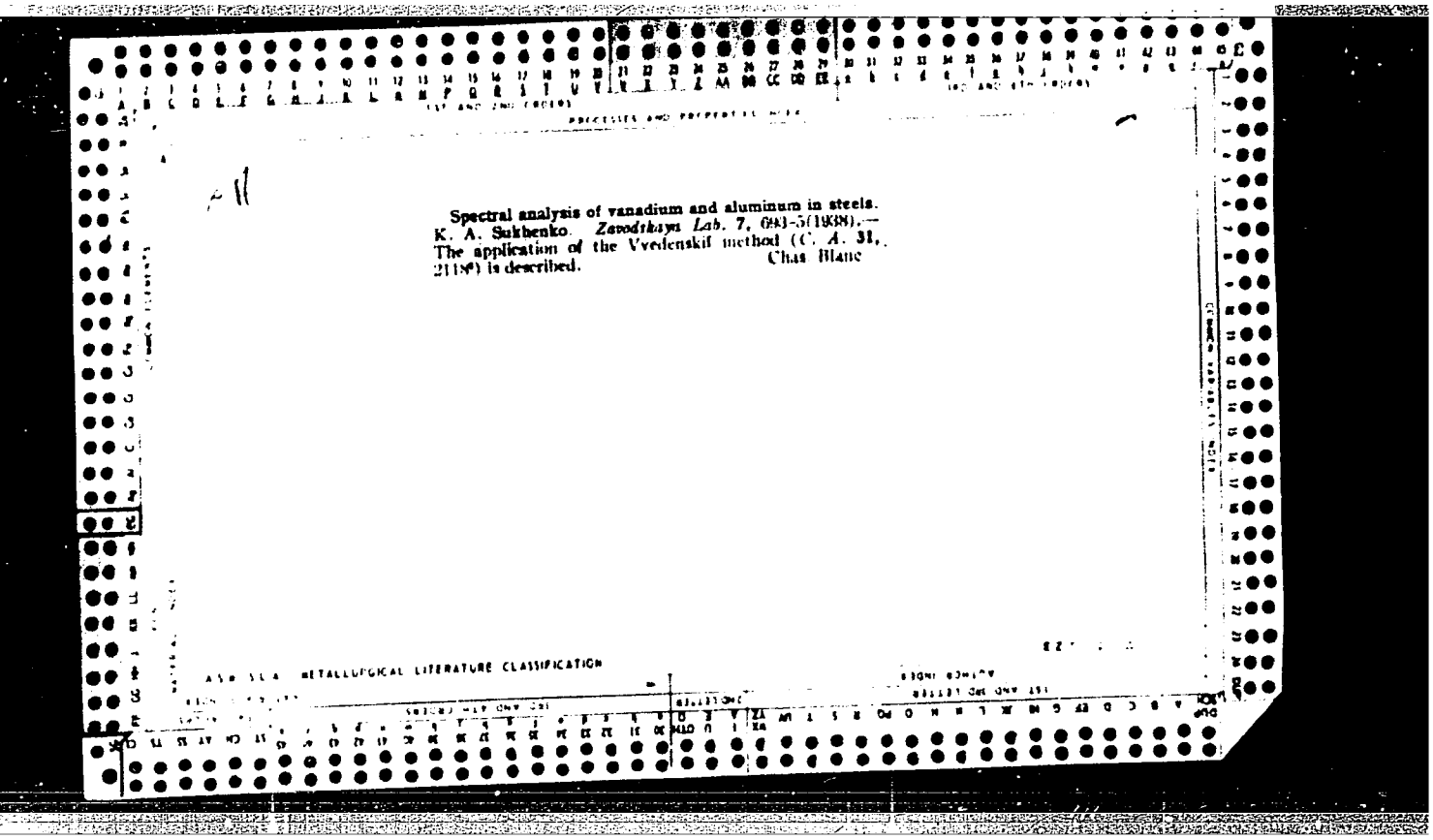
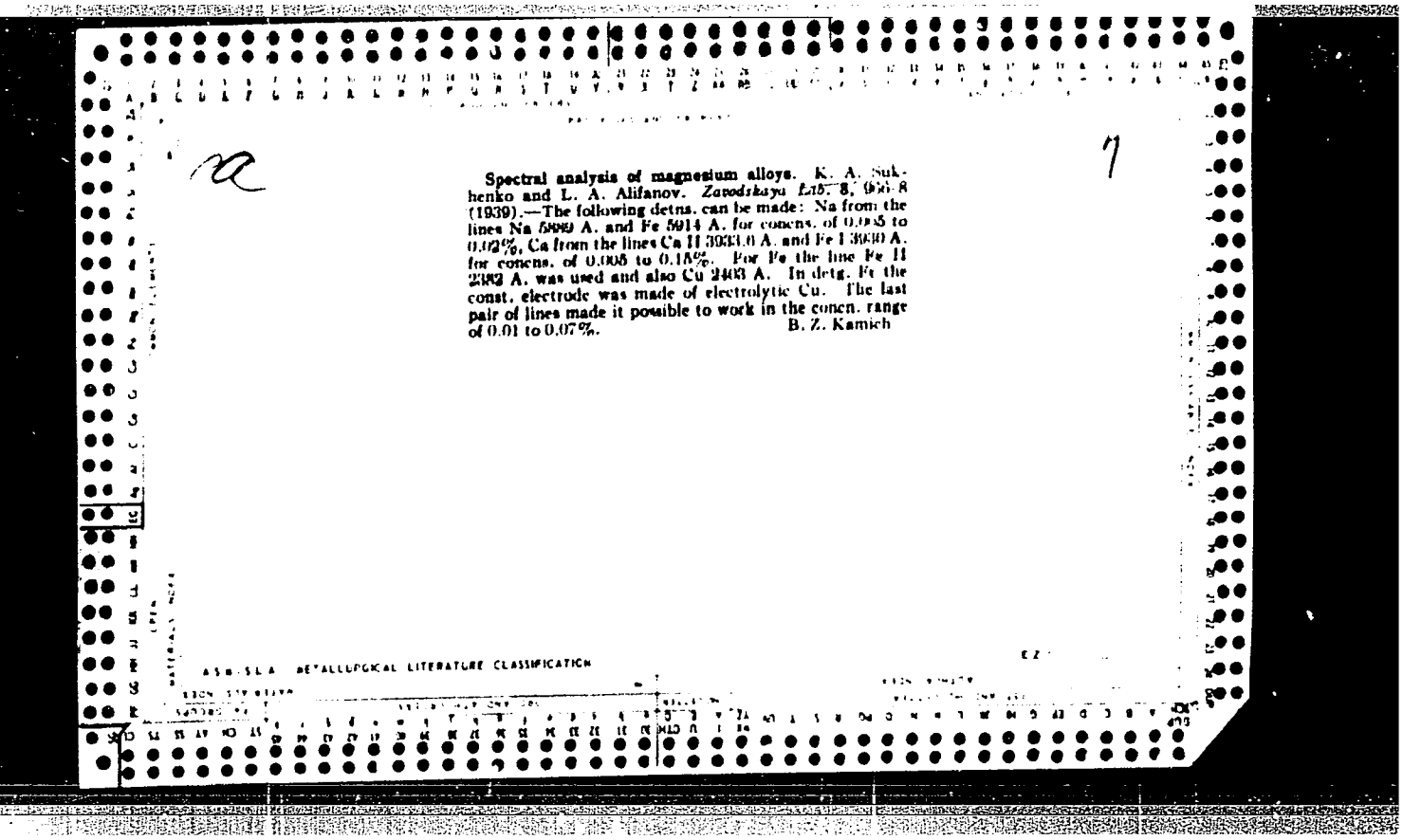
Spectral analysis of pure aluminum and Silumin. A. R. Striganov. *Zavodskaya Lab.* 7, 503(1938). K. A. Sukhenko. *Ibid.* 504; cf. C. A. 32, 2151⁹. Polemical.
B. C. P. A.

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION



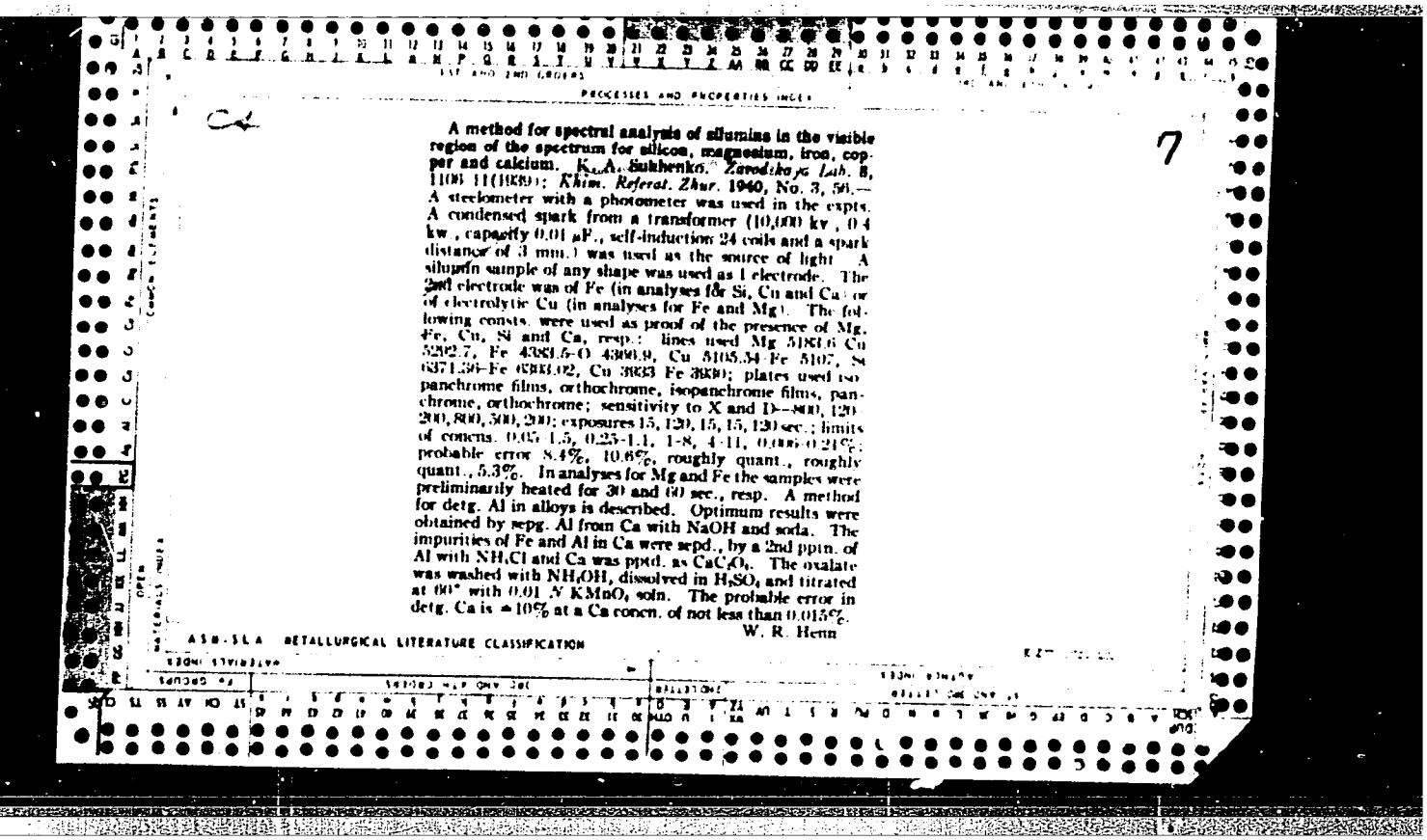
Spectral analysis of vanadium and aluminum in steels. K. A. Sukhenko. *Zavodskaya Lab.* 7, 683-5(1938).—The application of the Vvedenskii method (*C. A.* 31, 2119⁹) is described. Chas Blanc

METALLURGICAL LITERATURE CLASSIFICATION



Spectral analysis of magnesium alloys. K. A. Sukhenko and L. A. Alifanov. *Zavodskaya Lab.* 8, (9) 8 (1939).—The following detns. can be made: Na from the lines Na 5889 A. and Fe 5914 A. for concns. of 0.005 to 0.02%, Ca from the lines Ca II 3933.0 A. and Fe I 3930 A. for concns. of 0.005 to 0.15%. For Fe the line Fe II 2382 A. was used and also Cu 2403 A. In detg. Fe the const. electrode was made of electrolytic Cu. The last pair of lines made it possible to work in the concn. range of 0.01 to 0.07%.
B. Z. Kamich

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

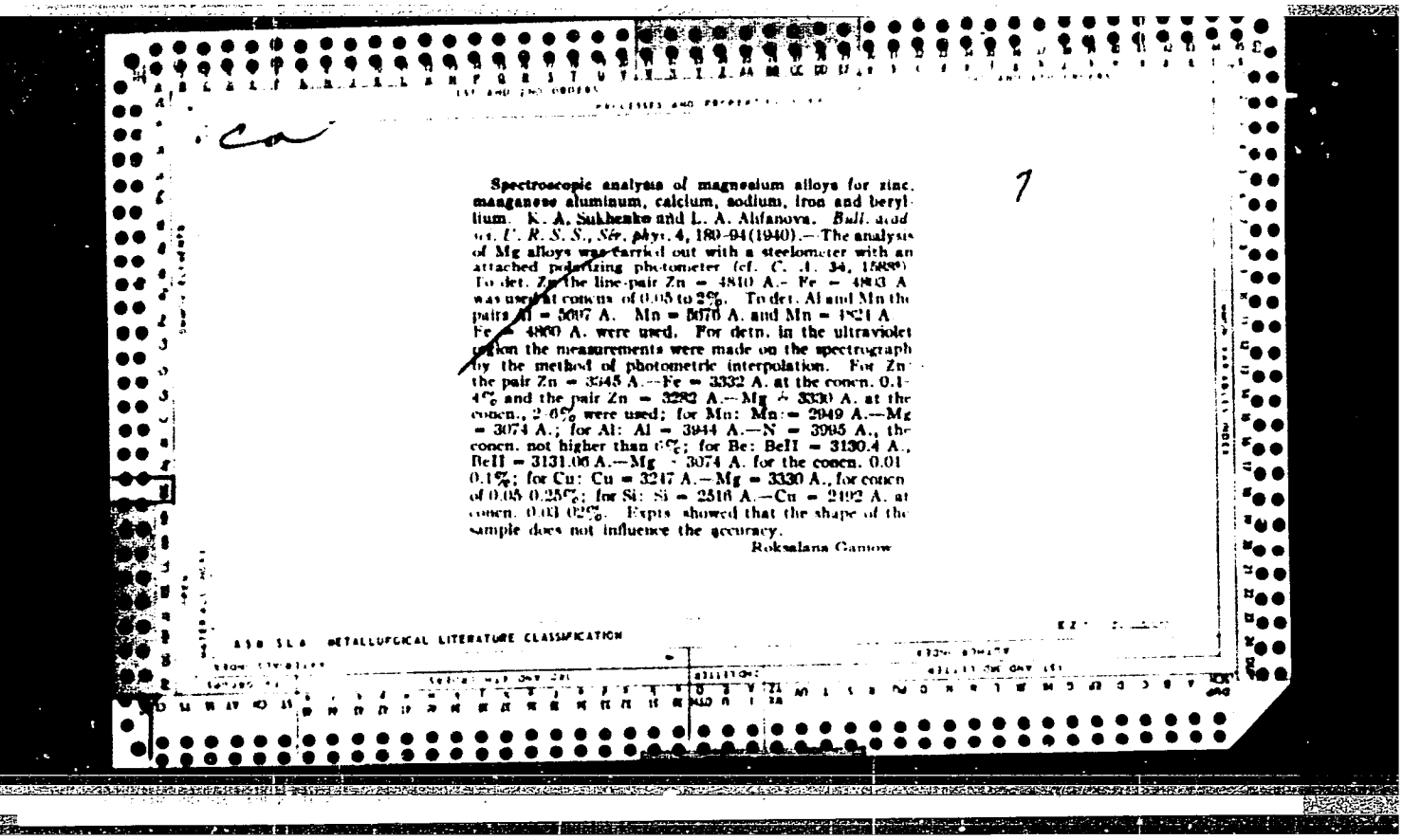
C4

7

A method for spectral analysis of alumina in the visible region of the spectrum for silicon, magnesium, iron, copper and calcium. K. A. Sukhenko. *Zavodskaya Lab.* 8, 1109-11(1939); *Khim. Referat. Zhur.* 1940, No. 3, 56.—A steelometer with a photometer was used in the expts. A condensed spark from a transformer (10,000 kv., 0.4 kw., capacity 0.01 μF., self-induction 24 coils and a spark distance of 3 mm.) was used as the source of light. A silumin sample of any shape was used as 1 electrode. The 2nd electrode was of Fe (in analyses for Si, Cu and Ca) or of electrolytic Cu (in analyses for Fe and Mg). The following consts. were used as proof of the presence of Mg, Fe, Cu, Si and Ca, resp.: lines used Mg 5183.6 Cu 5292.7, Fe 4383.6-O 4389.9, Cu 5105.54 Fe 5107, Si 6371.36-Fe 6393.02, Cu 3933 Fe 3930; plates used isopanchrome films, orthochrome, isopanchrome films, panchrome, orthochrome; sensitivity to X and D—800, 120-200, 800, 500, 200; exposures 15, 120, 15, 15, 120 sec.; limits of concns. 0.05-1.5, 0.25-1.1, 1-8, 4-11, 0.005-0.21%; probable error 8.4%, 10.6%, roughly quant., roughly quant., 5.3%. In analyses for Mg and Fe the samples were preliminarily heated for 30 and 60 sec., resp. A method for detg. Al in alloys is described. Optimum results were obtained by sepg. Al from Ca with NaOH and soda. The impurities of Fe and Al in Ca were sepd., by a 2nd pptn. of Al with NH_4Cl and Ca was pptd. as CaC_2O_4. The oxalate was washed with NH_4OH, dissolved in H_2SO_4 and titrated at 60° with 0.01 *N* $KMnO_4$ soln. The probable error in detg. Ca is ±10% at a Ca concn. of not less than 0.015%.

W. R. Henn

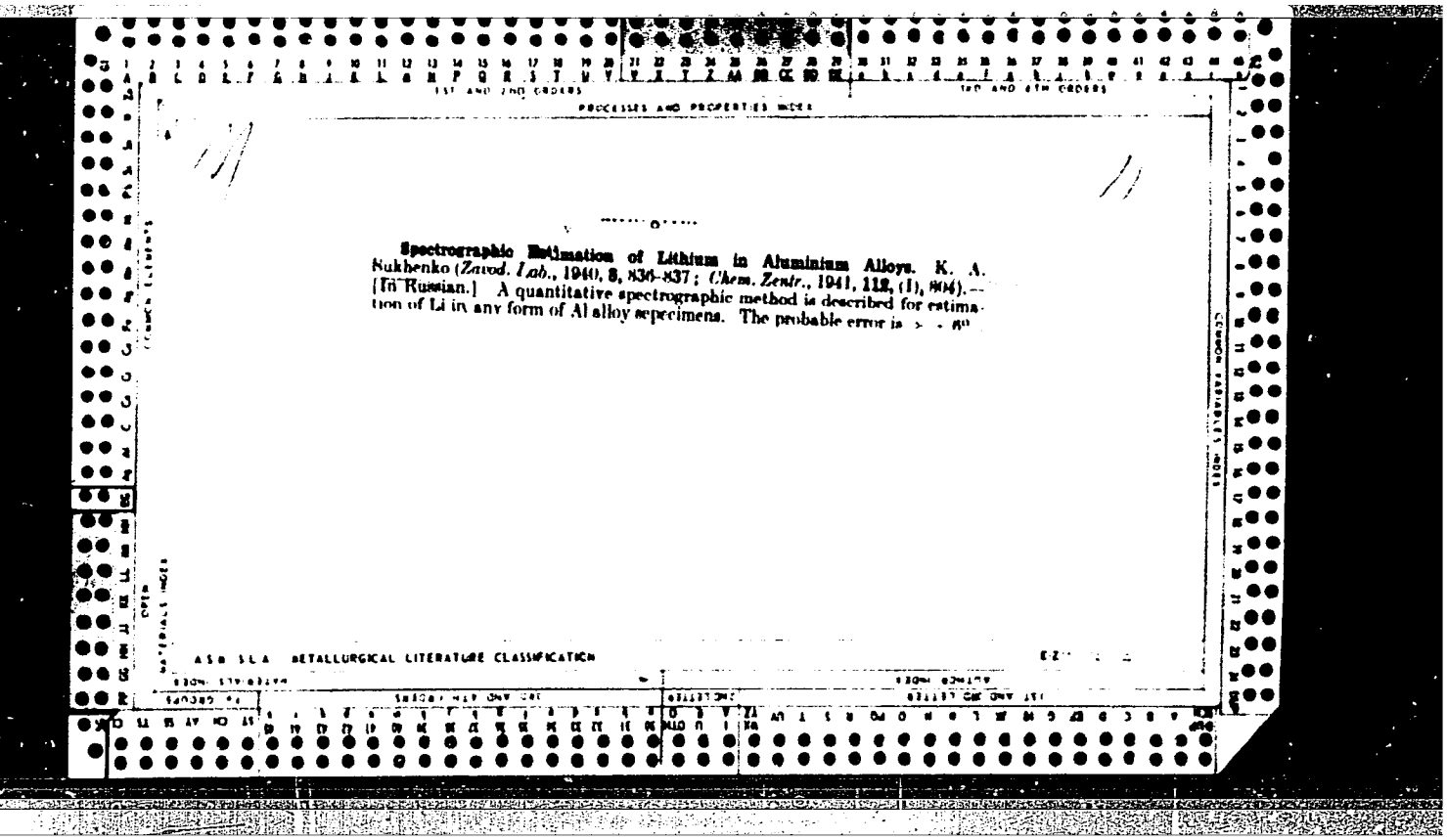
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Spectroscopic analysis of magnesium alloys for zinc, manganese aluminum, calcium, sodium, iron and beryllium. K. A. Sukhenko and L. A. Alifanova. *Bull. acad. sci. U. R. S. S., Sér. phys.* 4, 180–94 (1940).—The analysis of Mg alloys was carried out with a steelometer with an attached polarizing photometer (cf. *C. A.* 34, 1588⁸). To det. Zn the line-pair Zn = 4810 A.–Fe = 4883 A was used at concns of 0.05 to 2%. To det. Al and Mn the pairs Al = 5097 A. Mn = 5070 A. and Mn = 4821 A. Fe = 4890 A. were used. For detn. in the ultraviolet region the measurements were made on the spectrograph by the method of photometric interpolation. For Zn the pair Zn = 3345 A.—Fe = 3332 A. at the concn. 0.1–4% and the pair Zn = 3282 A.—Mg = 3330 A. at the concn., 2–6% were used; for Mn: Mn = 2949 A.—Mg = 3074 A.; for Al: Al = 3944 A.—N = 3995 A., the concn. not higher than 6%; for Be: BeII = 3130.4 A., BeII = 3131.06 A.—Mg = 3074 A. for the concn. 0.01–0.1%; for Cu: Cu = 3247 A.—Mg = 3330 A., for concn of 0.05–0.25%; for Si: Si = 2516 A.—Cu = 2492 A. at concn. 0.01–02%. Expts showed that the shape of the sample does not influence the accuracy.

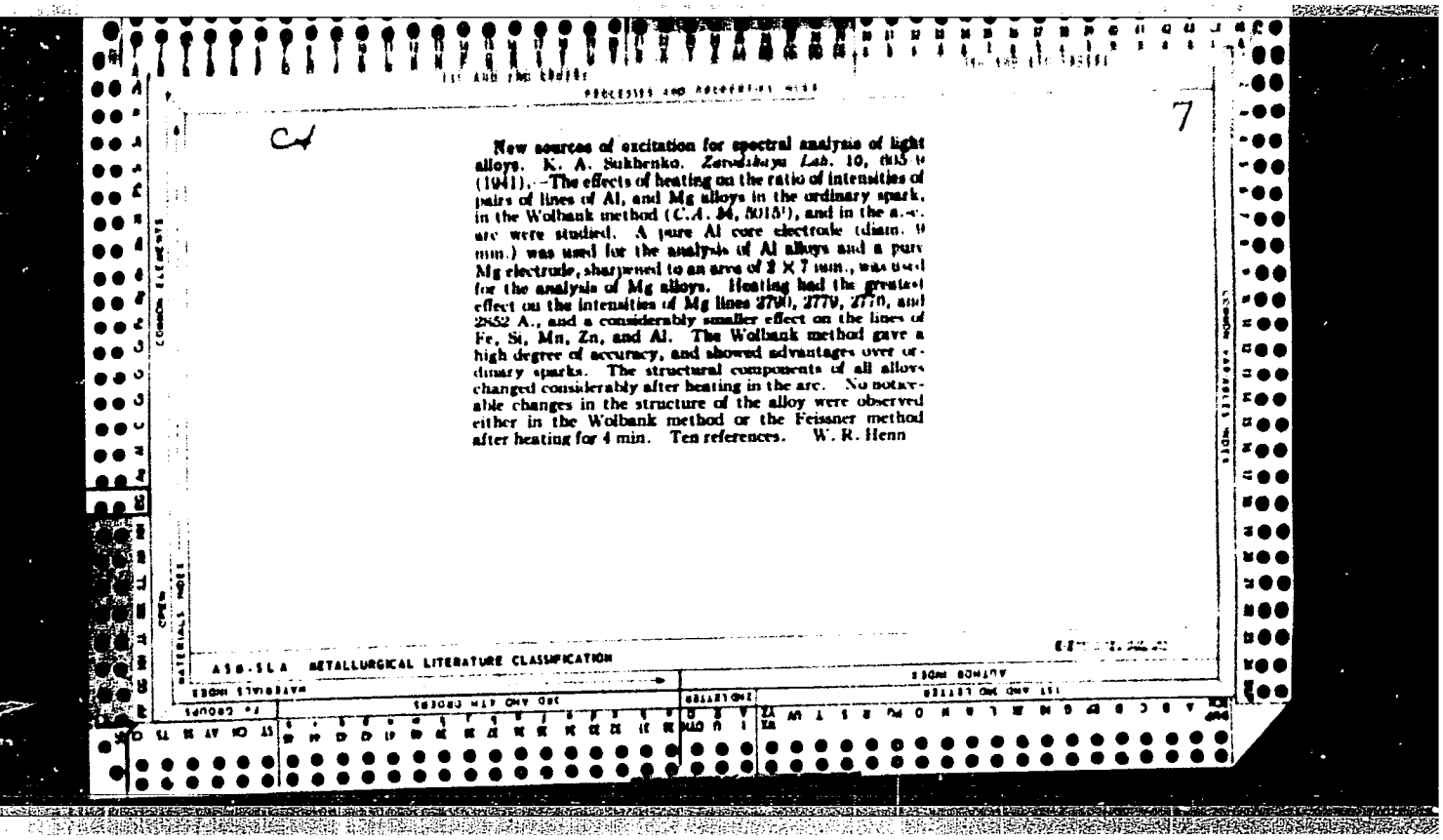
Roksalana Ganiow

ASB SLA METALLURGICAL LITERATURE CLASSIFICATION



Spectrographic Estimation of Lithium in Aluminium Alloys. K. A. Sukhenko (*Zavod. Lab.*, 1940, **8**, 836–837; *Chem. Zentr.*, 1941, **112**, (I), 904).—[In Russian.] A quantitative spectrographic method is described for estimation of Li in any form of Al alloy specimens. The probable error is [illegible]%

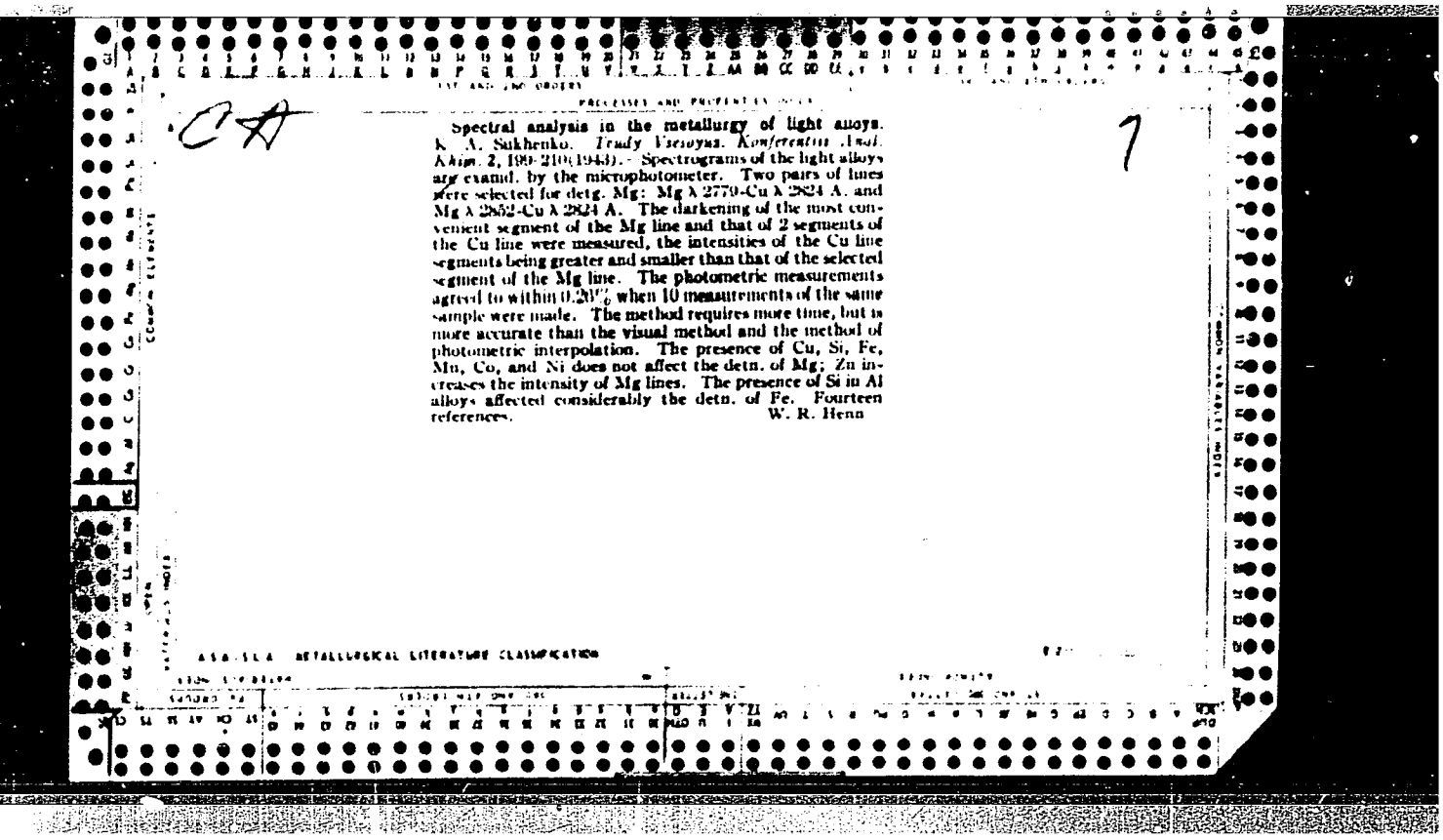
ASB STLA METALLURGICAL LITERATURE CLASSIFICATION



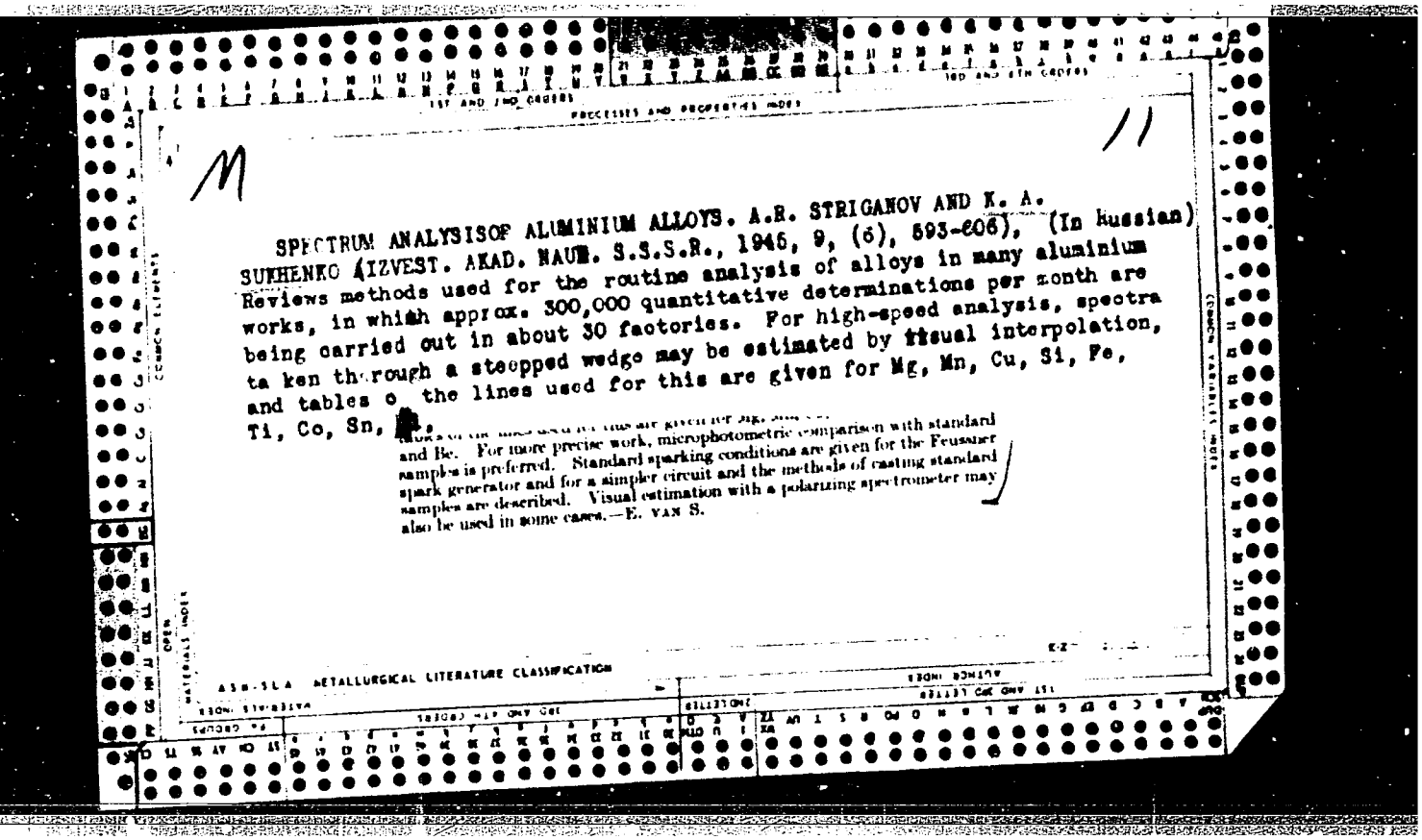
7

New sources of excitation for spectral analysis of light alloys. K. A. Sukhenko. *Zavodskaya Lab.* 10, 615 (1941).—The effects of heating on the ratio of intensities of pairs of lines of Al, and Mg alloys in the ordinary spark, in the Wolbank method (*C.A.* 34, 8015[1]), and in the a.-c. arc were studied. A pure Al core electrode (diam. 9 mm.) was used for the analysis of Al alloys and a pure Mg electrode, sharpened to an area of 2 × 7 mm., was used for the analysis of Mg alloys. Heating had the greatest effect on the intensities of Mg lines 2790, 2779, 2770, and 2652 A., and a considerably smaller effect on the lines of Fe, Si, Mn, Zn, and Al. The Wolbank method gave a high degree of accuracy, and showed advantages over ordinary sparks. The structural components of all alloys changed considerably after heating in the arc. No noticeable changes in the structure of the alloy were observed either in the Wolbank method or the Feissner method after heating for 4 min. Ten references. W. R. Henn

A58-SLA METALLURGICAL LITERATURE CLASSIFICATION

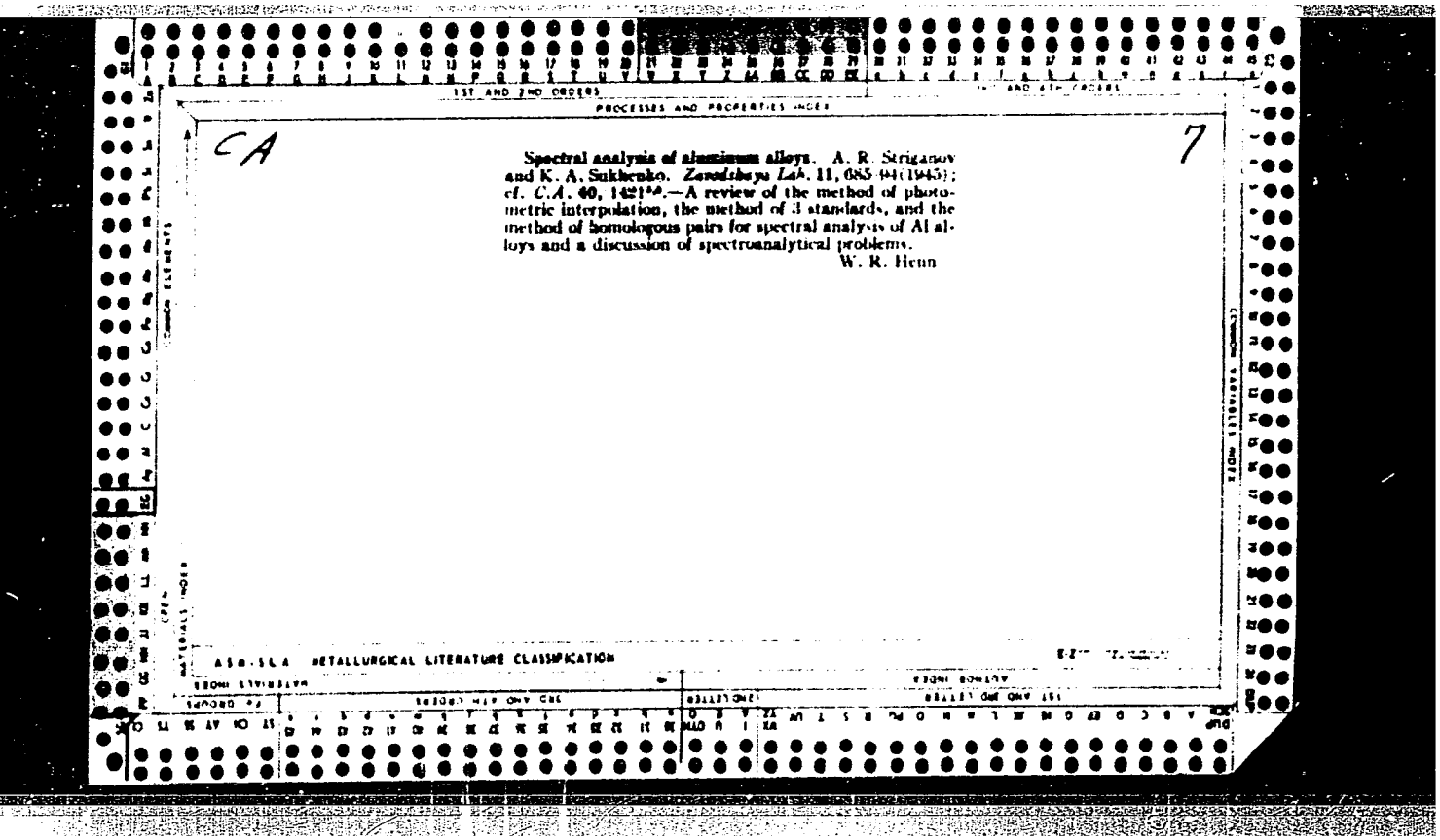


Spectral analysis in the metallurgy of light alloys. K. A. Sukhenko. *Trudy Vsesoyuz. Konferentsii Analit. Khim.* 2, 199-210(1943).- Spectrograms of the light alloys are examd. by the microphotometer. Two pairs of lines were selected for detg. Mg: Mg λ 2779-Cu λ 2824 A. and Mg λ 2852-Cu λ 2824 A. The darkening of the most convenient segment of the Mg line and that of 2 segments of the Cu line were measured, the intensities of the Cu line segments being greater and smaller than that of the selected segment of the Mg line. The photometric measurements agreed to within 0.20% when 10 measurements of the same sample were made. The method requires more time, but is more accurate than the visual method and the method of photometric interpolation. The presence of Cu, Si, Fe, Mn, Co, and Ni does not affect the detn. of Mg; Zn increases the intensity of Mg lines. The presence of Si in Al alloys affected considerably the detn. of Fe. Fourteen references.
W. R. Henn



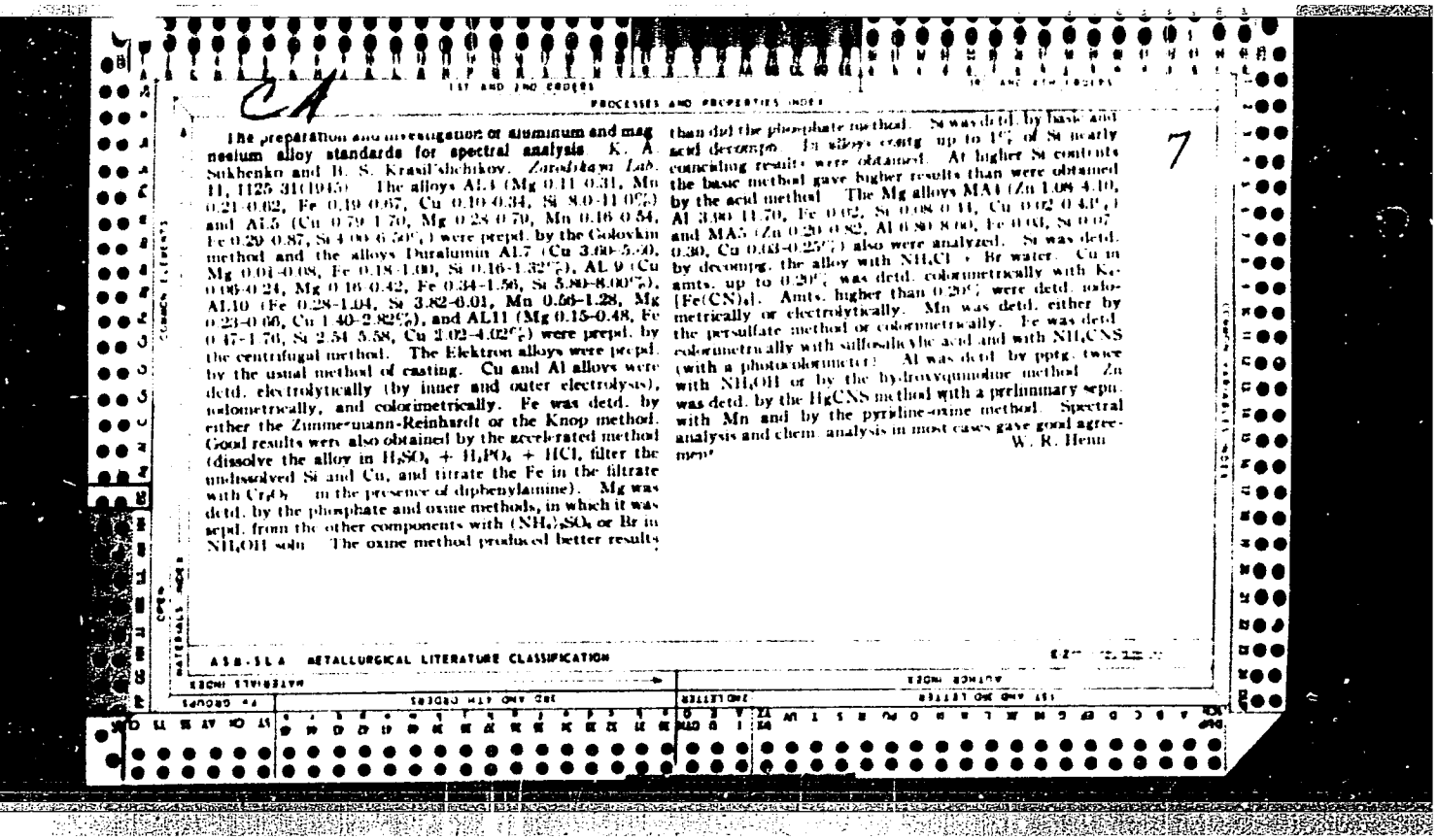
SPECTRUM ANALYSISOF ALUMINIUM ALLOYS. A.R. STRIGANOV AND K. A. SUKHENKO (IZVEST. AKAD. NAUK. S.S.S.R., 1946, 9, (6), 593-606), (In Russian) Reviews methods used for the routine analysis of alloys in many aluminium works, in which approx. 300,000 quantitative determinations per month are being carried out in about 30 factories. For high-speed analysis, spectra ta ken through a steopped wedge may be estimated by visual interpolation, and tables o the lines used for this are given for Mg, Mn, Cu, Si, Fe, Ti, Co, Sn, [redacted]

and Be. For more precise work, microphotometric comparison with standard samples is preferred. Standard sparking conditions are given for the Feussner spark generator and for a simpler circuit and the methods of casting standard samples are described. Visual estimation with a polarizing spectrometer may also be used in some cases.—E. VAN S.



CA 7

Spectral analysis of aluminum alloys. A. R. Striganov and K. A. Sukhenko. *Zavodskaya Lab.* 11, 685-94(1945); cf. *C.A.* 40, 1421[5].—A review of the method of photometric interpolation, the method of 3 standards, and the method of homologous pairs for spectral analysis of Al alloys and a discussion of spectroanalytical problems.
W. R. Henn



CA

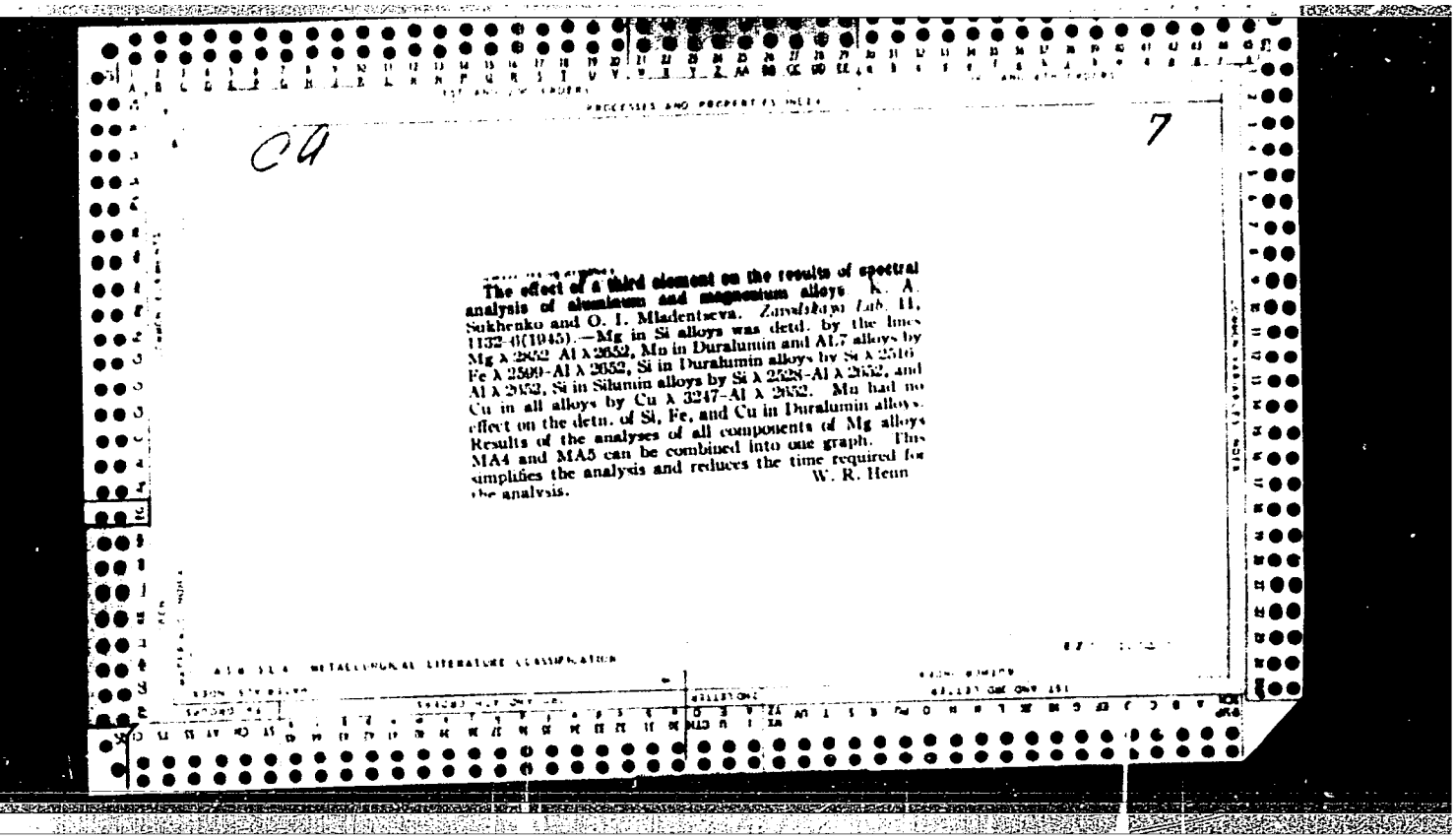
PROCESSES AND PROPERTIES INDEX

7

The preparation and investigation of aluminum and magnesium alloy standards for spectral analysis. K. A. Sukhenko and B. S. Krasil'shchikov. *Zavodskaya Lab.* 11, 1125-31(1945). The alloys AL3 (Mg 0.11-0.31, Mn 0.21-0.62, Fe 0.19-0.67, Cu 0.10-0.34, Si 8.0-11.0%) and AL5 (Cu 0.79-1.70, Mg 0.28-0.70, Mn 0.16-0.54, Fe 0.29-0.87, Si 4.00-6.50%) were prepd. by the Golovkin method and the alloys Duralumin AL7 (Cu 3.60-5.50, Mg 0.01-0.08, Fe 0.18-1.00, Si 0.16-1.32%), AL9 (Cu 0.06-0.24, Mg 0.16-0.42, Fe 0.34-1.56, Si 5.80-8.00%), AL10 (Fe 0.28-1.04, Si 3.82-6.01, Mn 0.56-1.28, Mg 0.23-0.66, Cu 1.40-2.82%), and AL11 (Mg 0.15-0.48, Fe 0.47-1.70, Si 2.54-5.58, Cu 2.02-4.02%) were prepd. by the centrifugal method. The Elektron alloys were prepd. by the usual method of casting. Cu and Al alloys were detd. electrolytically (by inner and outer electrolysis), iodometrically, and colorimetrically. Fe was detd. by either the Zimmermann-Reinhardt or the Knop method. Good results were also obtained by the accelerated method (dissolve the alloy in H_2SO_4 + H_3PO_4 + HCl, filter the undissolved Si and Cu, and titrate the Fe in the filtrate with CrO_3 in the presence of diphenylamine). Mg was detd. by the phosphate and oxine methods, in which it was sepd. from the other components with $(NH_4)_2SO_4$ or Br in NH_4OH soln. The oxine method produced better results than did the phosphate method. Si was detd. by basic and acid decomps. In alloys contg. up to 1% of Si nearly concordant results were obtained. At higher Si contents the basic method gave higher results than were obtained by the acid method. The Mg alloys MA1 (Zn 1.08-4.10, Al 3.80-11.70, Fe 0.02, Si 0.08-0.11, Cu 0.02-0.4%) and MA5 (Zn 0.20-0.82, Al 0.80-8.00, Fe 0.03, Si 0.07-0.30, Cu 0.03-0.25%) also were analyzed. Si was detd. by decomp. the alloy with NH_4Cl + Br water. Cu was by decomp. the alloy with NH_4Cl + Br water. Cu in amts. up to 0.20% was detd. colorimetrically with $K_4[Fe(CN)_6]$. Amts. higher than 0.20% were detd. iodometrically or electrolytically. Mn was detd. either by the persulfate method or colorimetrically. Fe was detd. colorimetrically with sulfosalicylic acid and with NH_4CNS (with a photocolorimeter). Al was detd. by ppte. twice with NH_4OH or by the hydroxyquinoline method. Zn was detd. by the HgCNS method with a preliminary sepn. with Mn and by the pyridine-oxine method. Spectral analysis and chem. analysis in most cases gave good agreement.

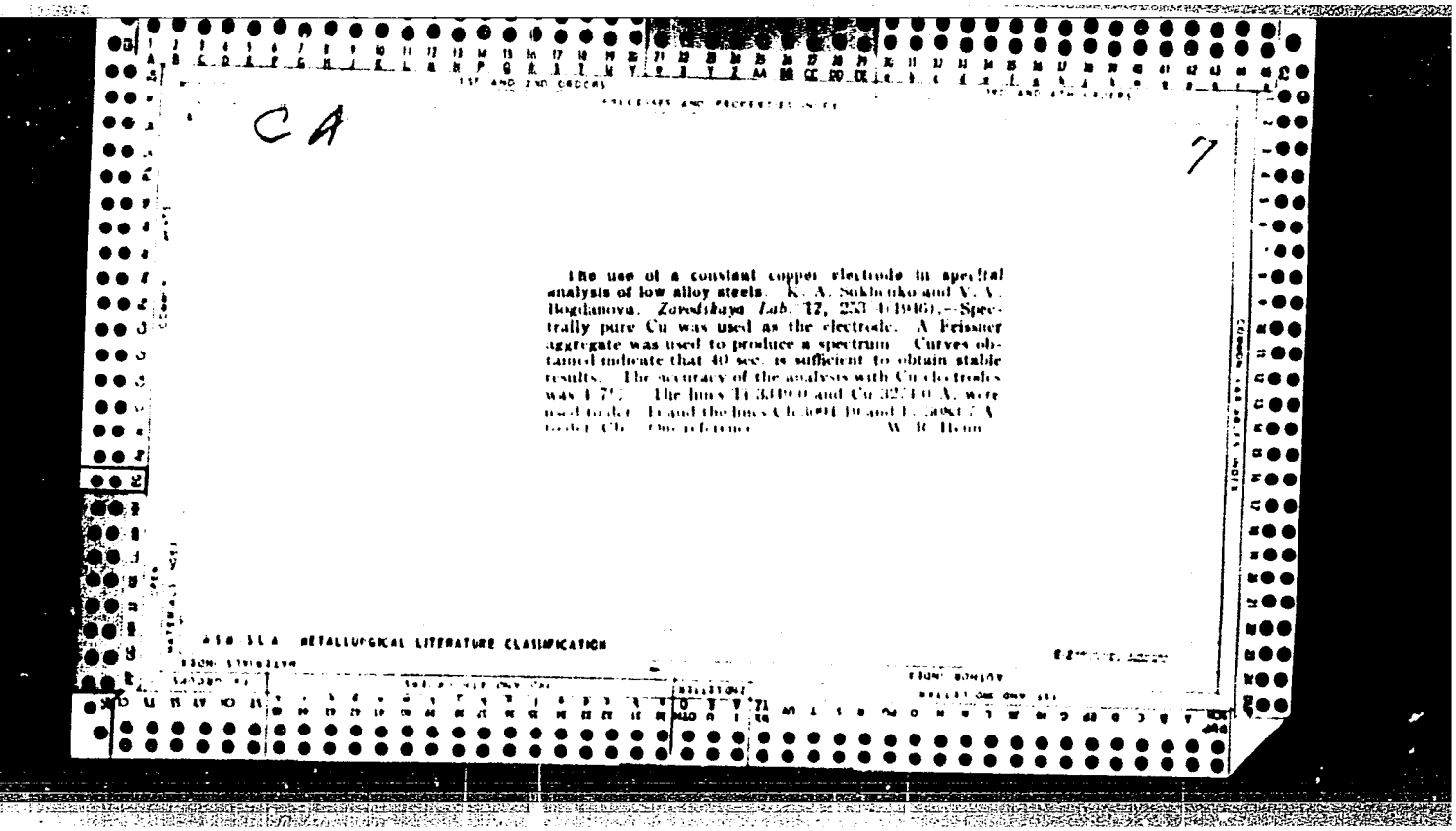
W. R. Henn

A58-5L4 METALLURGICAL LITERATURE CLASSIFICATION



CA 7

The effect of a third element on the results of spectral analysis of aluminum and magnesium alloys K. A. Sukhenko and O. I. Mladentseva. *Zavodskaya Lab.* 11, 1132–6(1945).—Mg in Si alloys was detd. by the lines Mg λ 2852–Al λ 2652, Mn in Duralumin and AL7 alloys by Fe λ 2599–Al λ 2652, Si in Duralumin alloys by Si λ 2516–Al λ 2652, Si in Silumin alloys by Si λ 2528–Al λ 2652, and Cu in all alloys by Cu λ 3247–Al λ 2652. Mn had no effect on the detn. of Si, Fe, and Cu in Duralumin alloys. Results of the analyses of all components of Mg alloys MA4 and MA5 can be combined into one graph. This simplifies the analysis and reduces the time required for the analysis. W. R. Heun



CA

7

The use of a constant copper electrode in spectral analysis of low alloy steels. K. A. Sukhenko and V. V. Bogdanova. *Zavodskaya Lab.* 32, 253–4 (1966).—Spectrally pure Cu was used as the electrode. A Feussner aggregate was used to produce a spectrum. Curves obtained indicate that 40 sec. is sufficient to obtain stable results. The accuracy of the analyses with Cu electrodes was 4.7%. The lines Fe 3440.9 Å and Cu 3247.5 Å were used to det. Fe and the lines Cr 3094.9 Å and Fe 3087.7 Å to det. Cr. One reference. W. R. Horn

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

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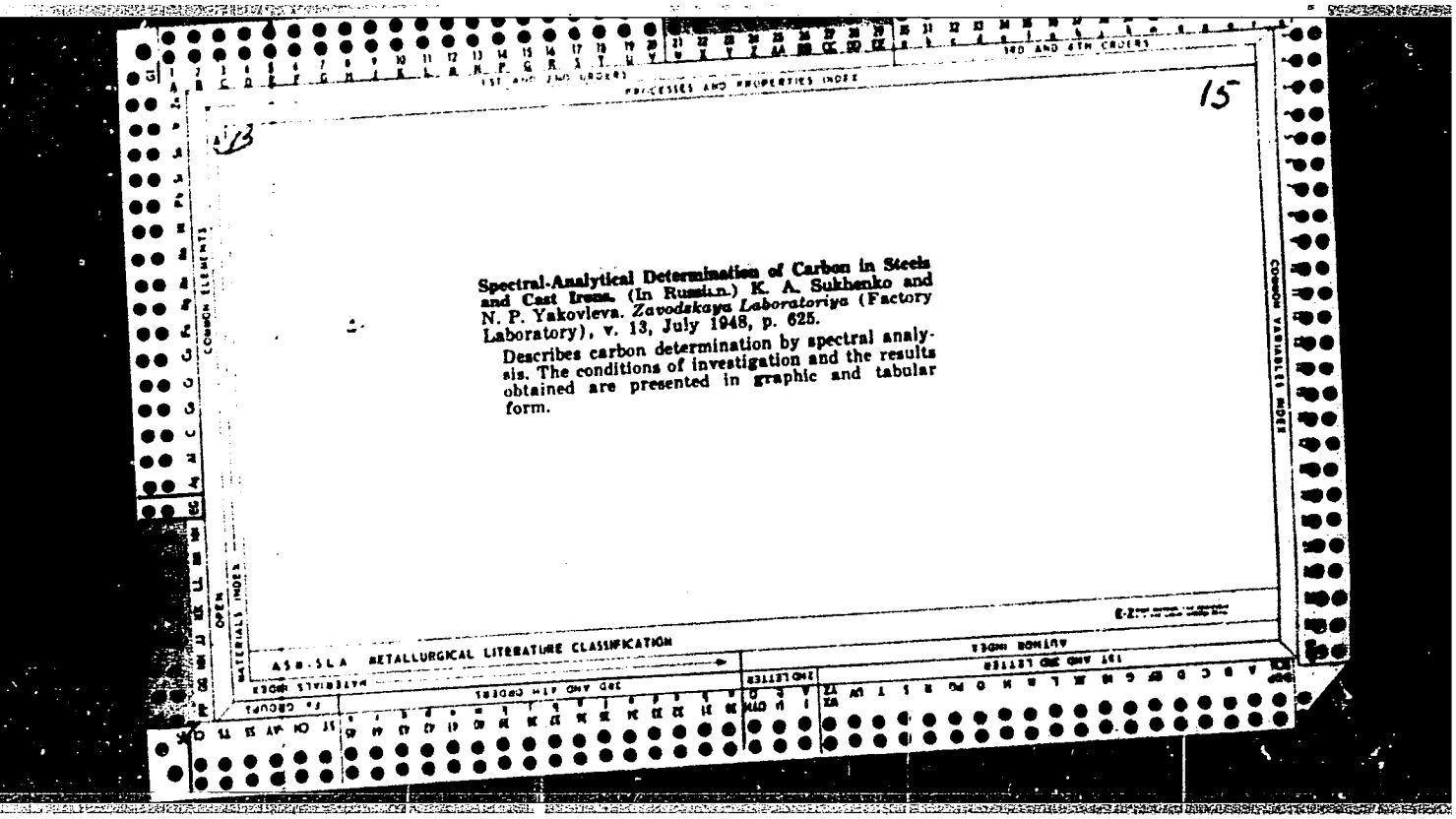
9

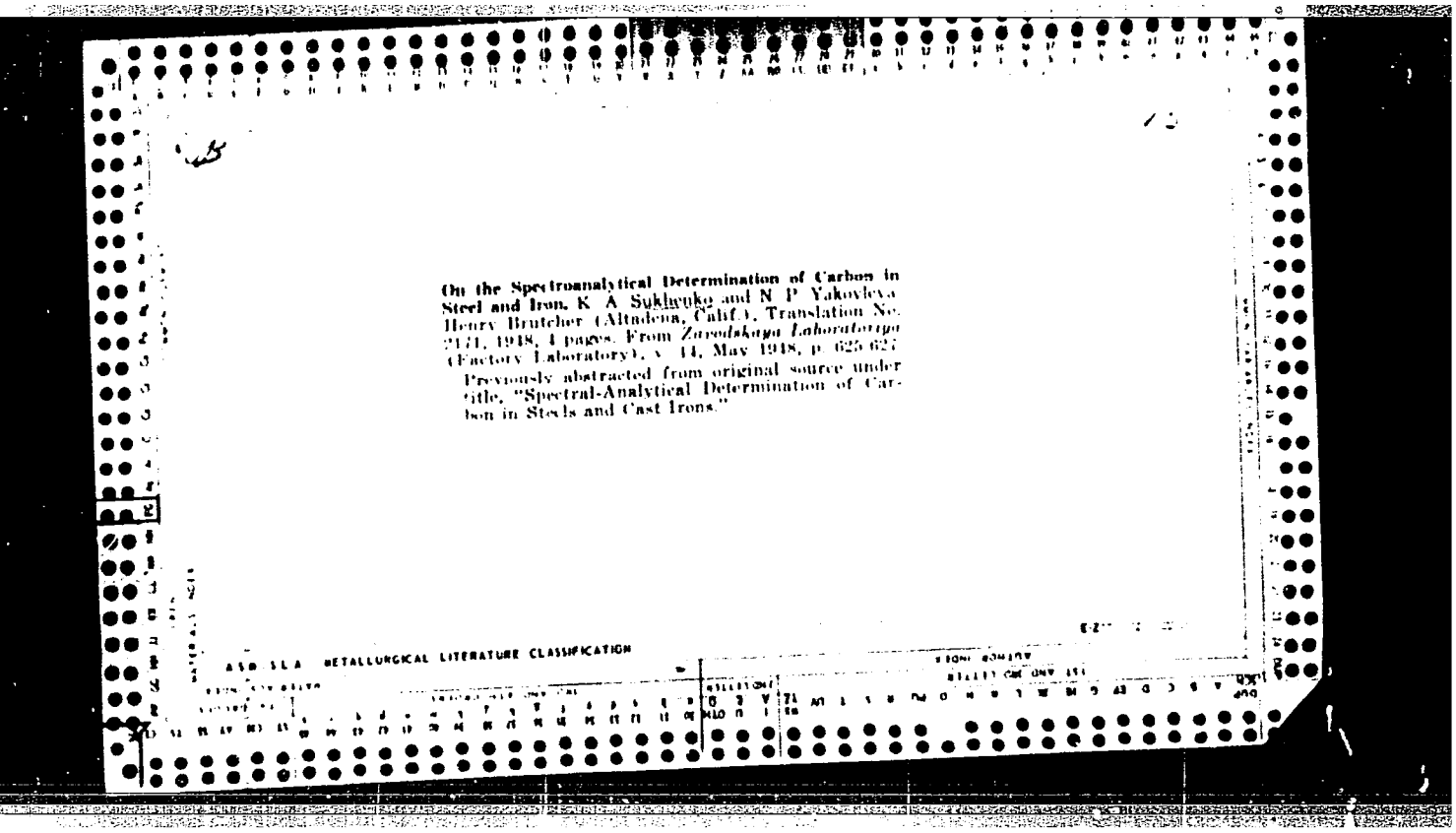
***Spectral Analysis of Complex Alloys of Nickel, Cobalt, and Aluminium.** K. A. Sukhenko, O. I. Mladentseva, and N. P. Yakovleva (*Izvest. Akad. Nauk. S.S.S.R.*, 1948, [Fiz.], **12**, 436–438; *C. Abs.*, 1950, **44**, 3838). [In Russian]. The following are the line pairs used, the mean error (and the corresponding concentration of the unknown element), in analyses for the element named first. *Ni Alloys*: Cr 2861–Ni 2863 Å., 4·2% (20-4%); Cr 2862–Ni 2863, 7·0 (20-4); Cr 3147–Ni 3012, 3·5 (20-4); Cr 2851–Ni 2863, 4·7 (20-4); Cr 2853–Ni 2863, 6·0 (20-4); Al 3961–Ni 3783, 15·3 (0-77); Ni 2328–Ni 2546, 10·4 (1-00); Mn 2593–Ni 2546, 10·0 (0·55); Mn 2593–Ni 2384, 11·1 (0·55); Ti 3361–Ni 3012, 10·9 (2·30); Ti 3361–Ni 3067, 11·3 (2·30); Fe 2390–Ni 2566, 8·6 (1·30); Fe 2590–Ni 2546, 12·3 (1·30). *Co Alloys*: Cr 2863–Co 2649; Cr 2861–Co 2649; Cr 2853–Co 2649; Cr 2851–Co 2649; Mn 2594–Co 2649; Si 2516–Co 2649; Fe 2599–Co 2649; Fe 2598–Co 2649; Fe 2390–Co 2467; Ni 2438–Co 2467; Ni 2394–Co 2398; W 2489–Co 2649; W 2683–Co 2649; W 2603–Co 2649; W 2589–Co 2649. *Al Alloys*: Zn 3302–Al 3050; Zn 3282–Al 3050; Zn 2557–Al 2652; in a condensed spark, also Zn 2502–Al 2652; Mg 2779–Al 2652, for 2–6% Mg, with Fe >0·8%; Mg 2915–Al 2652 and Mg 2776–Al 2652, for 9–16% Mg; Mg 2795–Al 2652 and Mg 2802–Al 2652 for Mg of the order of 0·001%.



15

Spectral-Analytical Determination of Carbon in Steels and Cast Irons. (In Russian.) K. A. Sukhenko and N. P. Yakovleva. *Zavodskaya Laboratoriya* (Factory Laboratory), v. 13, July 1948, p. 625.

Describes carbon determination by spectral analysis. The conditions of investigation and the results obtained are presented in graphic and tabular form.



On the Spectroanalytical Determination of Carbon in Steel and Iron. K A Sukhenko and N P Yakovleva. Henry Brutcher (Altadena, Calif.), Translation No. 2171, 1948, 4 pages. From *Zavodskaya Laboratoriya* (Factory Laboratory), v 14, May 1948, p 625-627.

Previously abstracted from original source under title, "Spectral-Analytical Determination of Carbon in Steels and Cast Irons."

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

PA 65/49T102

SUKHENKO, K. A.

USSR/Metals - Spectrum Analysis Aug 49
Nickel Alloys

"Spectral Analysis of Nickel Alloys," K. A. Sukhenko, O. I. Mladenstseva, All-Union Inst of Avn Materials, 5 pp

"Zavod Lab" Vol XV, No 8

Studied several different methods for analyzing Cr-, Ti-, Fe-, Al-, Si- and Mn- content in nickel alloys. Compared results for different light sources including ordinary AC arcs and HV arcs. Studied different dispersions. Graphs and tables show results obtained by the various methods.

65/49T102

[redacted], K. A.

G.I. Misharin and K.A. Sukhenko. Spectrum analysis of high alloyed steel. P. 1256

SO: Factory Laboratory, No. 10, 1950

SUKHENKO, K. A.

USSR/Metals - Analysis Dec 50

"Influence of Copper During Analysis of Aluminum Alloys and Influence of Iron and Titanium During Analysis of Nickel Alloys," K. A. Sukhenko, Z. S. Platonova

"Zavod Lab" No 12, pp 1507-1509

Expts proved that difference in Cu content in avial and duralumin has no effect on spectral detn of Mg, Mn, Fe, and Cu, and both alloys may be analyzed by common calibration curve plotted according to stds of duralumin. Also established that Fe, Cr and Ti in Ni alloys have no mutual influence and

182T96

USSR/Metals - Analysis (Contd) Dec 50

may be detd using single set of stds, common for several grades of Ni-alloys.

182T96

SUKHENKO K. A.

USSR/Metals - Spectrography Sep/Oct 50

"Spectral Analysis of Steels and Alloys," K. A. Sukhenko

"Iz Ak Nauk SSSR, Ser Fiz" Vol XIV, No 5, pp 590-597

Plots calibration curves for quantitative spectral analysis of various steels and magnesium, nickel, aluminum and copper alloys.

172T54

SUKHENKO, K. A.

PA 160T67

USSR/Metals - Alloys
Spectrum Analysis

Apr 50

"Determination of High Contents of Elements in Light Alloys," K. A. Sukhenko, 4 pp

"Zavod Lab" Vol XVI, No 4

Develops spectrum method for determining high concentrations of copper, aluminum, and magnesium in light alloys. Method increases accuracy of spectrum determination of these elements and makes possible simultaneous complete analysis of an alloy for magnesium, manganese, iron, and silicon, using ordinary analytical pairs of lines.

160T67

C.A.

7

Spectrographic determination of major constituents in light alloys. K. A. Sukhenko. *Zavodskaya Lab.* 16, 459–63(1950).—By using a 2.5-mm. arc gap, a Mg counter electrode, no self-inductance, 0.003 μF capacitance, and a 30-sec. exposure, and measuring the intensity ratio Al 3587/Mg 3330, 3–12% Al in Mg can be detd. in Al alloys with a mean deviation of 4.5%. Under the same conditions and with a 90-sec. exposure and an Al counter electrode, 9–16% Mg can be measured in Al alloys with a mean deviation of 4% by using the line pairs Mg 2915/Al 2652 or Mg 2776/Al 2652. High concns. of Cu in duralumin were detd. by using a condensed spark with the following parameters: secondary voltage 14 kv.; capacitance 18,000 cm., inductance 8×10^9 cm., and arc gap 2 mm. Measurement of Cu 2824/Al 2816 or Cu 2824/Al 2652 gave a mean deviation of 3–6% for a single detn.

Cyrus Feldman

SUKHENKO, K.F.

Journal of the Iron and Steel Institute
Vol. 176
Apr. 1954
Analysis

Spectrum Analysis of High-Alloy Steel. G. I. Mishaev and K. F. Sukhenko. (*Zavodskaya Laboratoriya*, 1950, 16: 701). [In Russian]. Consideration is given to problems involved in the rapid spectral determination in high alloy steels of chromium (15–25%), manganese (0·2–1·0%), nickel (8–12%), silicon (0·5–2·0%), molybdenum (0·10–0·5%), titanium (0·02–0·25%), and vanadium (0·02–0·25%). Curves showing the effect of annealing time on the intensity of the pairs of lines used in the determination of each element are presented. Working curves are drawn and are related to the methods of preparation and structure of the corresponding standards. A photometric analytical technique is recommended whereby each of the seven elements can be determined in 15 to 20 minutes. E.

USSR/Chemistry - Spectral analysis

Card 1/1 Pub. 43 - 45/97

Authors : Nekrasov, B. Ya.; Misharin, G. I.; Saranchuk, E. I.; Sukhenko, K. A.; Fishman, I. S.; and Yakovleva, N. P.

Title : Method of express spectral analysis, its advantages and results of introducing into industry

Periodical : Izv. AN SSSR. Ser. fiz. 18/2, page 271, Mar-Apr 1954

Abstract : The results obtained by industry in applying the I. S. Fishman method of controlled standards to the analysis of Al-alloys, high-alloyed steel, cast iron and Ni are mentioned briefly. The application of the objective express spectral analysis method in industry is highly recommended by the authors of this report. One USSR reference (1950).

Institution : The All-Union Institute of Aviation Materials

Submitted : .....

USSR/Miscellaneous - Spectral analysis

Card 1/1 Pub. 43 - 80/97

Authors : Sukhenko, K. A.

Title : Preparation and investigation of samples for spectral analysis

Periodical : Izv. AN SSSR. Ser. fiz. 18/2, page 292, Mar-Apr 1954

Abstract : A method is introduced for the preparation and testing of steel, cast iron, bronze, aluminum and magnesium alloy samples for spectral analysis. The possibility of mass preparation of such samples by casting in chill molds of various form is discussed.

Institution : All-Union Institute of Aviation Materials

Submitted : .....

USSR/ Analytical Chemistry. General Problems. G-1

Abs Jour: Referat. Zhur.-Khimiya, No. 8, 1957, 27118.

Author : K.A. Sukhenko, I.O. Mladentseva, N.P. Gorozhankina, Z.S. Platonova, A.V. Aksenova, S.M. Il'ina.

Inst. : Academy of Sciences of USSR.

Title : Production and Study of Standards of Various Alloys for Spectral Analysis.

Orig Pub: Izv. AN SSSR, Ser. fiz., 1955, 19, No. 2, 161 - 164.

Abstract: Abridged review of the state of production of standards for spectral analysis in USSR. The method of casting of standards at the Scientific Research Institute of Ministry of Aviation Industry is described. The application of the method of continued casting for preparing standards

Card 1/2

24(7) PHASE I BOOK EXPLOITATION SOV/1700

Lvov. Universitet

Materialy X Vsesoyuznogo soveshchaniya po spektroskopii, 1956. t. II: Atomnaya spektroskopiya (Materials of the 10th All-Union Conference on Spectroscopy, 1956. Vol 2: Atomic Spectroscopy) [Lvov] Izd-vo L'vovskogo univ., 1958. 568 p. (Series: Its: Fizicheskiy sbornik, vyp. 4(9)) 3,000 copies printed.

Additional Sponsoring Agency: Akademiya nauk SSSR. Komissiya po spektroskopii.

Editorial Board: G.S. Landsberg, Academician, (Resp. Ed.); B.S. Neporent, Doctor of Physical and Mathematical Sciences; I.L. Fabelinskiy, Doctor of Physical and Mathematical Sciences; V.A. Fabrikant, Doctor of Physical and Mathematical Sciences; V.G. Koritskiy, Candidate of Technical Sciences; S.M. Rayskiy, Candidate of Physical and Technical Sciences; L.K. Klimovskaya, Candidate of Physical and Mathematical Sciences; V.S. Miliyanchuk (Deceased), Doctor of Physical and Mathematical Sciences; A.Ye. Glauberman, Doctor of Physical and Mathematical Sciences; Ed.: S.L. Gazer; Tech. Ed.: T.V. Saranyuk.

PURPOSE: This book is intended for scientists and researchers in the field of spectroscopy, as well as for technical personnel using spectrum analysis in various industries.

COVERAGE: This volume contains 177 scientific and technical studies of atomic spectrography presented at the 10th All-Union Conference on Spectroscopy in 1956. The studies were carried out by members of scientific and technical institutes and include extensive bibliographies of Soviet and other sources. The studies cover many phases of spectroscopy: spectra of rare earths, electromagnetic radiation, physicochemical methods for controlling uranium production, physics and technology of gas discharge, optics and spectroscopy, abnormal dispersion in metal vapors, spectroscopy and the combustion theory, spectrum analysis of ores and minerals, photographic methods for quantitative spectrum analysis of metals and alloys, spectral determination of the hydrogen content of metals by means of isotopes, tables, and atlases of spectral lines, spark spectrographic analysis, statistical study of variation in the parameters of calibration curves, determination of traces of metals, spectrum analysis in metallurgy, thermochemistry in metallurgy, and principles and practice of spectrochemical analysis.

Card 2/31

Materials of the 10th All-Union Conference (Cont.) SOV/1700

Card 15/31

USSR/Analytical Chemistry - Analysis of Inorganic Substances, G-2

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 1264

Author: Sventitskiy, N. S., Sukhenko, K. A., Galinov, P. P., Fal'kova, O. B., Alpatov, M. S., and Taganov, K. I.

Institution: None

Title: Spectral Determination of Nitrogen, Hydrogen, and Oxygen in Titanium and Its Alloys

Original Periodical: Zavod. laboratoriya, 1956, Vol 22, No 6, 668-673

Abstract: The determination of N, O, and H in Ti alloys and of H in Ti powder is described. The determinations were made with a type ISP-51 spectrograph (with a camera of f = 270 mm for N and O and a type UF 85 camera of f = 1,300 mm for H); type III spectroscopic plates were used for N and O and type 250 Government Standard panchormatic film was used for H. Several methods of excitation were tested, including low-voltage condenser sparks and single-pulse high- and low-voltage condenser discharges. The first method gave the best results with N,

Card 1/2

'The Spectral Analysis of Alloys on a Titanium Basis 32-11-19/60

{Al 3961.53 {Ti 3989.76	{Cr 2843.25 {Ti 2841.94	{Al 3092.71 {Ti 3048.77	{Cr 2766.54 {Ti 2841.94	{Fe 2599.40 {Ti 2555.99

The analysis was carried out on the following conditions: voltage of the second transformer winding 13 kV, self-induction 0.01, amperage 2 A, annealing 1.5 min., spark spacing 2 mm. This method has already been introduced in industrial plants. There is 1 table.

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